

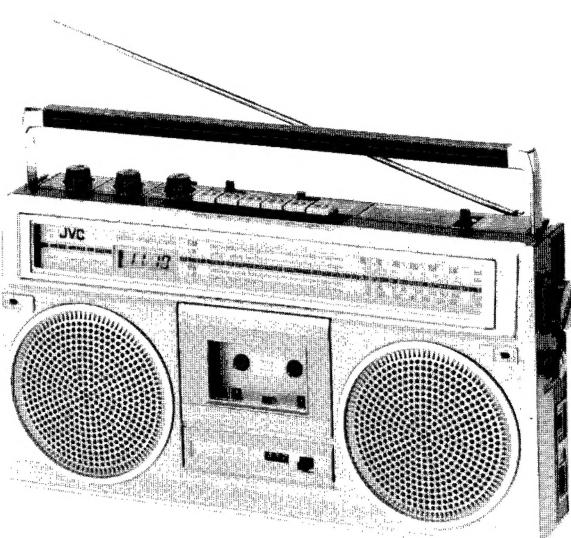
JVC

SERVICE MANUAL

MODEL

RC-555KL

FM-SW-MW-LW
4 BAND STEREO RADIO
CASSETTE RECORDER



No. 1449
March 1981

Contents

Main Features	2
Specifications	2
Names of Parts	3
Main Parts Location	4
How to Remove the Respective Sections	5
How to Remove the Respective Cassette Mechanism	
Component	6
Adjustment of Cassette Recorder	7, 8
How to Engage Dial Cord	9
Adjustment of Cassette Recorder Amplifier	9
Tuner Alignment	10, 11
Block Diagram	12
Schematic Diagram of RC-555KL (Tuner Circuit)	13
Schematic Diagram of RC-555KL (Amplifier Circuit)	14
Wiring Connection	15
Mechanical Component Parts	16
ICs	17
Mechanical Component Parts List	18
Cabinet Assembly Parts	20
Cabinet Assembly Parts List	21
Chassis Base Assembly Parts	22
Chassis Base Assembly Parts List	23
Tuner P.W. Board Parts	24
Tuner P.W. Board Parts List	25, 26
Amplifier P.W. Board Parts	27
Amplifier P.W. Board Parts List	28, 29
Clock Relation Parts	30
Clock Relation Parts List	30
Clock P.W. Board Parts	31
Clock P.W. Board Parts List	31
Packing, Packing Material Parts List	Back cover
Accessories	Back cover

Specifications

Semiconductors	: 7 ICs (including 2 for the microphone), 19 transistors (including 2 for the motor)
Speakers	: 12 cm (3.2 Ω) x 2
Tuner section	
Frequency ranges	: FM 88 – 108 MHz SW 6 – 18 MHz MW 540 – 1600 kHz LW 150 – 350 kHz
Antennas	: Telescopic antenna for SW & FM Ferrite core antenna for MW & LW
Tape recorder section	
Tape	: Philips type cassette
Track system	: 4-track, 2-channel stereo
Frequency response	: 60 – 10,000 Hz
Wow & flutter	: 0.12 % (WRMS)
S/N ratio	: 40 dB
Rewind time	: Within 105 sec. (C-60 cassette)
Fast forward time	: Within 105 sec. (C-60 cassette)
Amplifier section	
Power output	: Max. 6 W (3 W + 3 W) (DC) 4 W (2 W + 2 W) (DC) at 10% THD
Input jacks	: Mic x 2 (1 mV, low impedance)
Output jacks	: Ext. speaker x 2 (load impedance 3.2 ~ 8 Ω) Headphones x 1 (load impedance 8 Ω)
Input/output jack	: DIN jack
Power supply	: DC 9 V (6 "R20 (= U2)" batteries) Car battery (DC 9 V) AC 240/220/110 V, 50/60 Hz
Power consumption	: 12 W
Dimensions	: 420(W) x 230(H) x 102(D) mm
Weight	: 3.6 kg (without batteries) 4.1 kg (with batteries)

Design and specifications subject to change without notice.

Main Features

- One button recording mechanism
- Pause facility
- Auto-stop mechanism
- ALC (Automatic Level Control) mechanism
- 4 LED (Light Emitting Diode) indicators for easy checking of operation
- External speaker jacks
- Clock built-in

Names of Parts

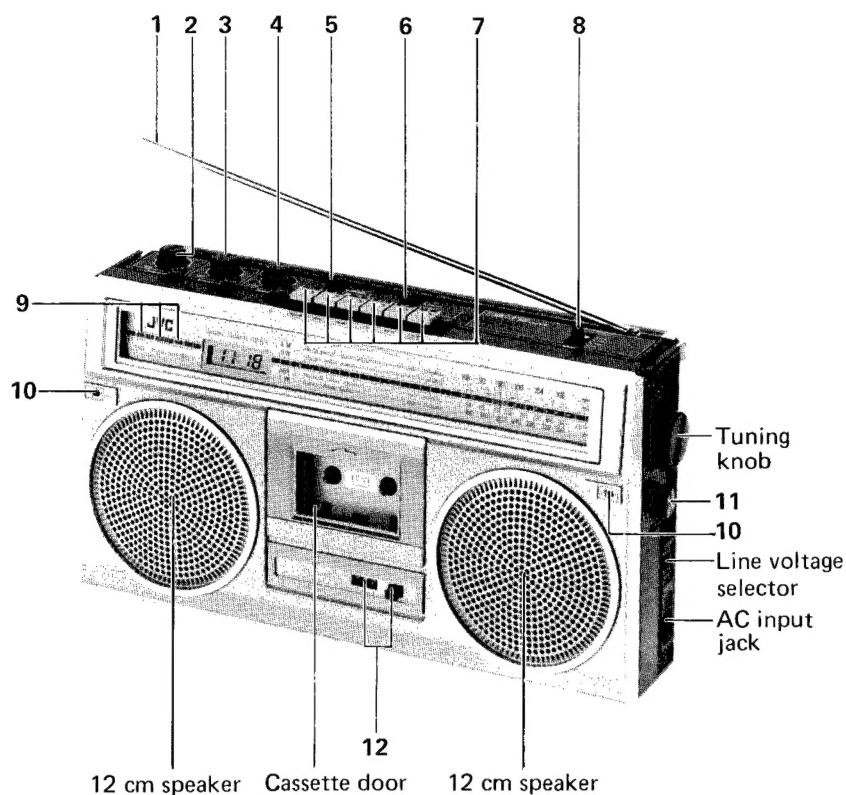


Fig. 1

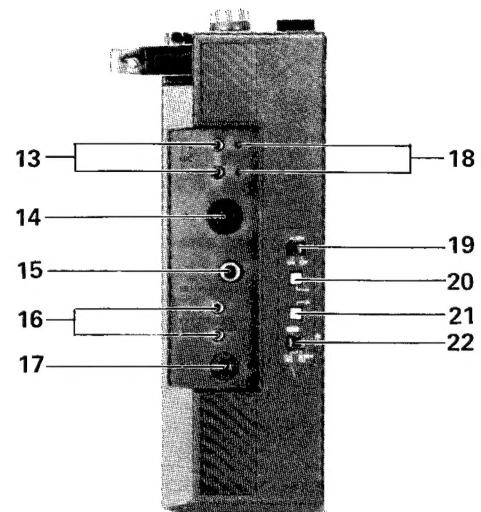


Fig. 2

1. Telescopic antenna for the reception of FM and SW broadcasts.
2. VOLUME control
3. BALANCE control
4. TONE control
5. BEAT CUT/MODE switch
 - SPEAKER REVERSE
 - STEREO
 - MONO
6. FUNCTION switch
 - DIN IN
 - RADIO
 - TAPE/RADIO STANDBY
7. Cassette operation buttons
 - PAUSE button
 - Record button (REC)
 - PLAY button
 - FF button
 - Rewind button (REW)
 - STOP/EJECT button
8. BAND select switch (FM/SW/MW/LW)
9. Indicators (LED's)
 - BATT
 - REC
 - TUNE
 - FM STEREO
10. Built-in condenser microphones
11. FINE TUNING knob
12. Tape counter with reset button
13. Microphone jacks (MIC)
14. DIN jack (REC/PB)
15. Stereo headphone jack (HEADPHONES)
16. External speaker jacks (EXT SPEAKER 3.2~8Ω)
17. External DC power jack (DC 9 V)
18. Dummy holes
19. Alarm ON/OFF switch
20. Hour adj. button
21. Minute adj. button
22. Alarm time adj. switch

Main Parts Location

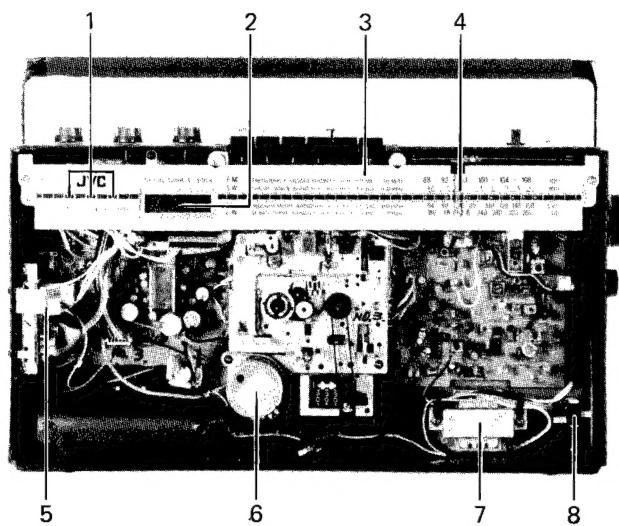


Fig. 3

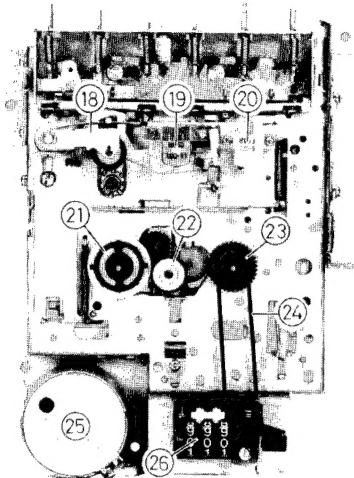


Fig. 5

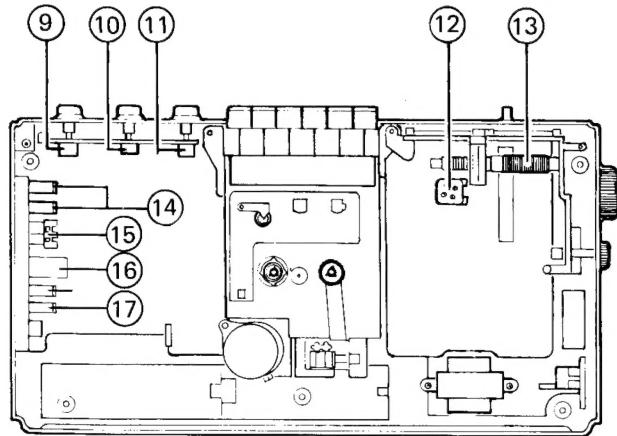


Fig. 4

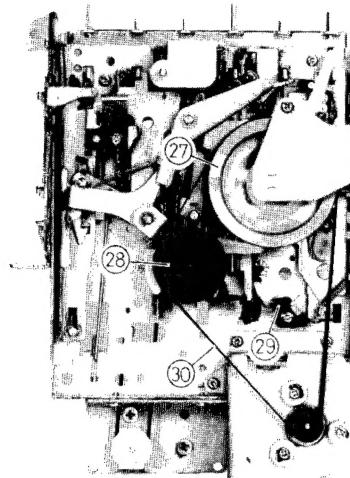


Fig. 6

1. LED indicators	16. Headphone jack
2. Digital quartz clock	17. Ext. speaker jacks
3. Dial scale	18. Pinch roller ass'y
4. Needle	19. REC/PB head
5. D. quartz clock circuit	20. Erase head
6. Motor	21. Take-up reel ass'y
7. Power transformer	22. Take-up roller
8. Power supply P.W.B. ass'y	23. Supply reel ass'y
9. VR of volume	24. Counter belt
10. VR of balance	25. Motor ass'y
11. VR of tone	26. Tape counter
12. Variable capacitor	27. Flywheel ass'y
13. Bar antenna	28. RF clutch ass'y
14. Microphone jacks	29. Leaf switch
15. DIN jack	30. Main belt

How to Remove the Respective Sections

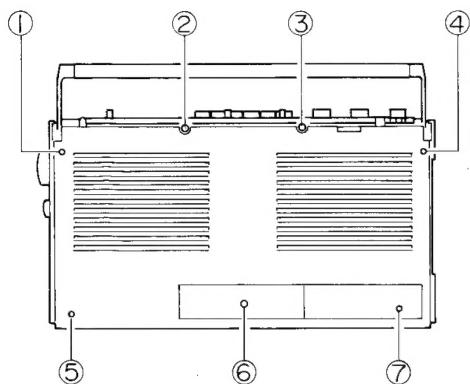


Fig. 7

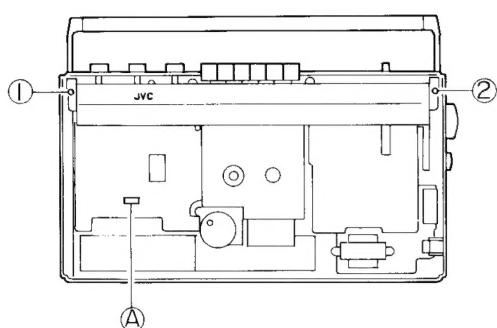


Fig. 8

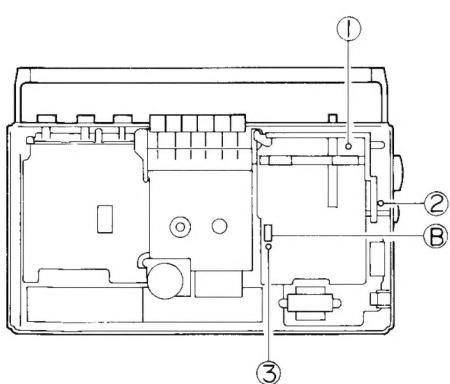


Fig. 9

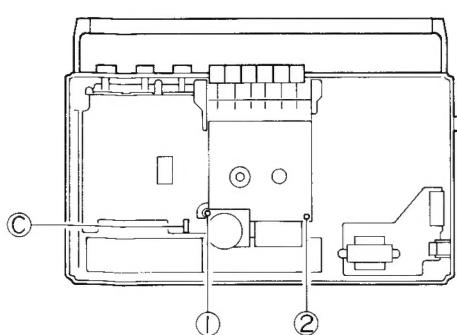


Fig. 10

(Remove in the order of the numbers.)

1. Front cover (Fig. 7)

- Remove the battery cover.
- Remove 7 screws (① ~ ⑦) fastening the front cover.
- Open the cassette door.
- Remove the front cover, and then disconnect 4-pin connector and 3-pin connector.
- Disconnect the earth wire (black) of the tuner P.W.B. assembly.

2. Dial scale (Fig. 8)

- Remove 2 screws (①, ②) fastening the dial scale.
- Remove pulling out the needle to front side.

Note: When assembling the dial scale, do not use more longer 12 mm screws.

3. Tuner P.W.B. assembly (Fig. 9)

- Pull out the tuning knob.
- Remove 3 screws (① ~ ③) fastening the tuner P.W.B. assembly.
- Disconnect the 6-pin connector. (⑧)

4. Cassette mechanism section (Fig. 10)

- Remove 2 screws. (①, ②)
- Disconnect 4-pin connector ⑨ and remove the cassette section to right side.

5. Amplifier circuit board assembly (Fig. 11)

- Remove the sound volume, balance and tone knobs.
- Remove 7 screws (① ~ ⑦) fastening the Amp. circuit board assembly.
- Disconnect 6-pin connector. (④), (Fig 8)
- Disconnect 3-pin connector. (⑩)
- Remove a screw fastening the bracket for pin jacks terminal.

6. Clock and its buzzer P.W.B. assembly

(Refer to page 30.)

- 1) Remove 2 screws fastening the clock P.W.B. to the dial scale assembly (rear side).
- 2) Remove 2 screws fastening the bracket of the clock circuit to the cabinet (right side).
- 3) Disconnect 3-pin connector.

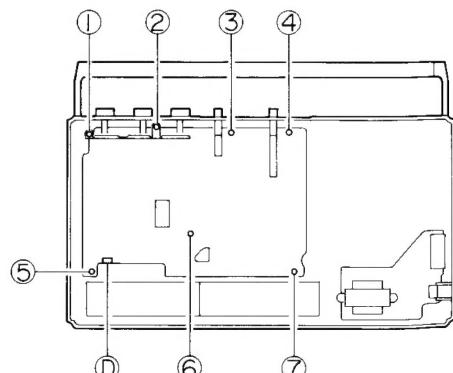


Fig. 11

How to Remove the Respective Cassette Mechanism Component

(Refer to mechanical component on page 16.)

1. **Pinch roller (70)**
 - Remove the spring (71).
 - Remove the E-ring (7).
2. **REC/PB head (57)**
 - Remove 2 screws (60), (61).
 - Remove the solenoid head circuit board.
3. **Erase head (62)**
 - Remove 2 screws (63).
4. **Reel assembly (73), (74)**
 - Insert the special tool for reel removing to reel 3 groove, and then pull out the reel.
5. **Take-up roller (18)**
 - Push the FF button.
 - Remove the washer (19).

If you broke the washer, you can use E-ring (REE1200).
6. **RF clutch assembly (27)**
 - Remove the main belt (35).
 - Pull out the pulley (it is pressed).
7. **Main belt (35)**
 - To flywheel bracket (36) remove a screw (26).

8. Flywheel assembly (33)

Do the same manner as for the main belt.
(When assembling it, be careful not to forget the nylon washer for capstan.)

9. Reef switch (47)

- Remove the screw (48).

10. Motor assembly (50)

- Remove 3 screws (100).

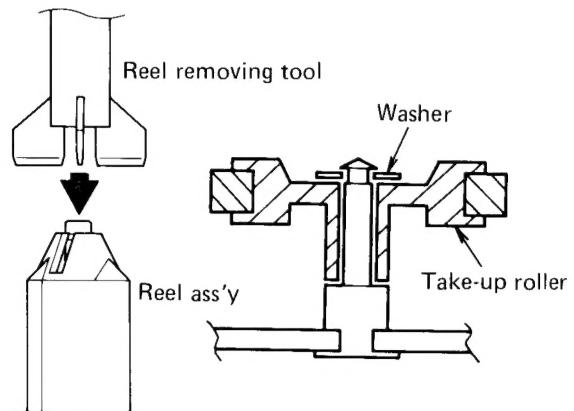


Fig. 12

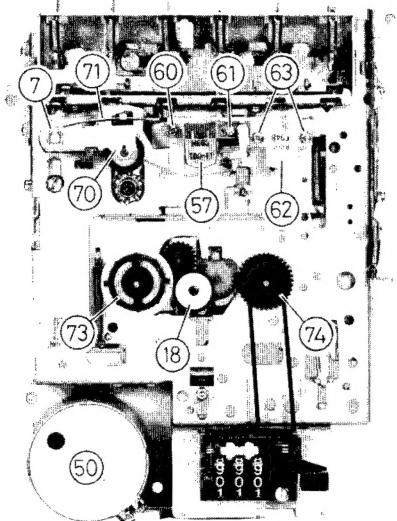


Fig. 13

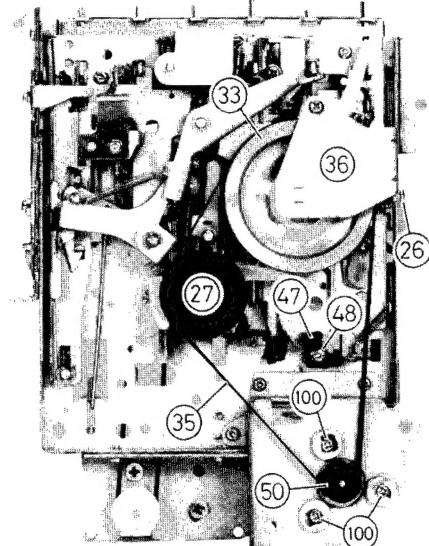


Fig. 14

Adjustment of Cassette Recorder

If the following adjustments are performed by ear or eye in a simple manner, be sure to perform them again later.

■ Head replacement and angle adjustment

1. Head replacement

- 1) To replace the record/playback head, remove two screws **(A)** and **(B)** shown in Fig. 15.
- 2) To replace the erase head, remove two screws **(C)** and **(D)** shown in Fig. 15.
- 3) When pressing the playback button, adjust these heads with the screws and the adjustment hole so that they are located as shown in Fig. 15.

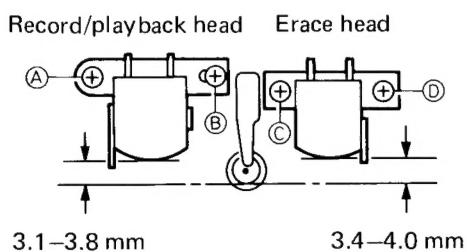


Fig. 15

2. Angle adjustment of Record/Playback head

- 1) Connect an oscilloscope to the speaker terminal. (A Lissajous waveform will appear.)
- 2) Play back the head angle adjusting tape (JVC test tape VTT-657).
- 3) Adjust the head angle by turning screw **(B)** shown in Fig. 15 so that the phase difference between the L and R outputs is 0° and the outputs are maximum.
- 4) After adjustment, be sure to paint-lock screw **(B)**.
- 5) When adjusting the head angle using neither a voltmeter nor test tape, adjust it so that the output (esp. high band) from the speaker is maximum.

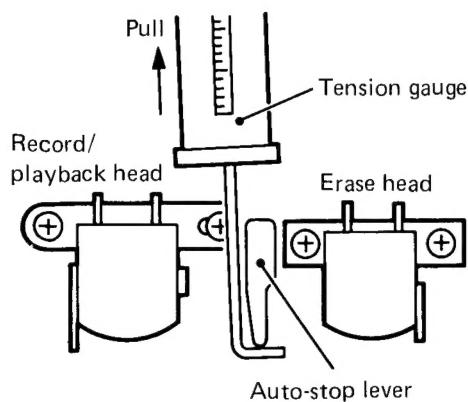


Fig. 16

■ Check of auto-stop detection pressure

- 1) Place the head mechanism with its motor side down, then set the recorder into the playback mode.
- 2) Hang a tension gauge on the detection cap tip as shown in Fig. 16, then confirm that when this gauge is slowly pulled, the auto-stop lever operates in the range of 50-70 g.

■ Flywheel thrust adjustment

Insert a clearance gauge into the clearance between the flywheel and the flywheel bracket, then adjust the thrust by turning the thrust screw shown in Fig. 17 to obtain a clearance of 0.1-0.3 mm wide.

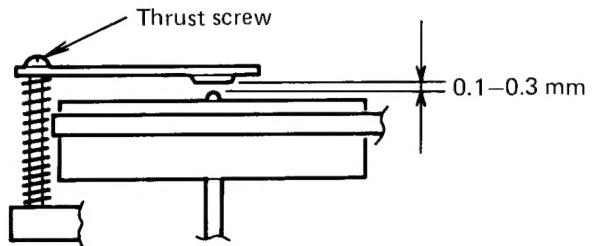


Fig. 17

■ Pause operation check

Operation and timing check

- 1) Confirm that when pressing the PAUSE button in the playback mode, the tape stops running, while when re-pressing, the recorder returns to the playback mode without any abnormality.
- 2) Confirm that when slowly pressing the PAUSE button, the pinch roller separates from the capstan to stop rotating earlier than the reel disk which in turn stops rotating. (Although they may stop almost at the same time, this means no abnormality.)

Note: For positive checking, it is advisable to use a cassette tape with a small number of turns such as C-30, etc.

■ Adjustment of pinch roller contact force

- 1) Position the mechanism shown in Fig. 13 with the motor side down, enter the recorder into the playback mode, and hang a tension gauge on the protrusion part of the pinch roller arm shown in Fig. 13. Next, confirm that when slowly pulling the tension gauge, the pinch roller stops rotating in the range of 450-550 g.

2) If the pinch roller does not stop in this range, replace the contact spring or adjust the contact force by bending this spring.

Note: Overly strong contact force may cause noise in the pinch roller bearing part, wow & flutter, or similar adverse effects. Conversely, too little contact force may cause auto-stop function failure, wow & flutter, or similar adverse effects.

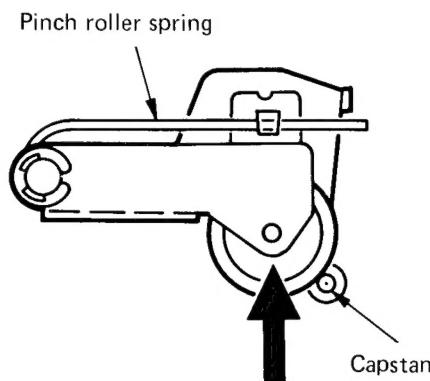


Fig. 18

■ Playback torque adjustment

1) Set a torque gauge to the take-up reel, then enter the recorder into the playback mode, and confirm that the playback torque is 45–70 g/cm.

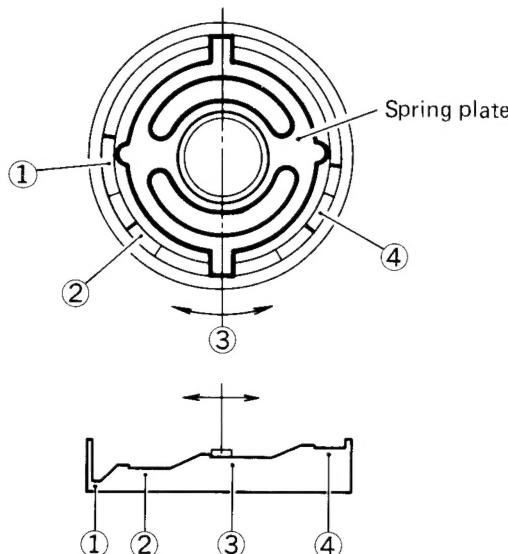


Fig. 19

2) When the playback torque is not in this range, check whether or not rubber and/or rotary members have dirt and/or oil on them. After that, if the torque is still low, lift up the spring plate shown in Fig. 19 to move it to position ③, while if the torque is high, move it to position ① in the same manner.

■ Fast forward/rewind torque adjustment

1. Fast forward torque adjustment (Fig. 20)

Set a torque gauge to the take-up reel, then enter the recorder into the playback mode, and confirm that the fast forward torque is 60–130 g/cm.

- 1) When a normal torque is not obtained because of the instability of the sliding mechanism within the R.F. clutch ass'y, lift up the spring plate inside the R.F. clutch ass'y and adjust the torque by moving it in the direction of ①.
- 2) When a normal torque is not obtained should the said sliding mechanism operate normally, adjust the torque by moving the said spring plate in the direction of ④ in the same manner as item 1).

2. Rewind torque adjustment (Fig. 20)

Set a torque gauge to the rewind reel, then enter the recorder into the rewind mode, and confirm that the rewind torque is 60–130 g/cm.

- 1) When a normal torque is not obtained because of the instability of the sliding mechanism within the R.F. clutch ass'y, lift up the spring plate inside the R.F. clutch ass'y and adjust the torque by moving it in the direction of ①.
- 2) When a normal torque is not obtained should the said sliding mechanism operate normally, adjust the torque by moving the said spring plate in the direction of ④ in the same manner as item 1) of this paragraph.

Note: When rubber members (belt, idler), the fringe of the flywheel, etc. have dirt on them, a normal torque may not appear, so clean them with alcohol, etc.

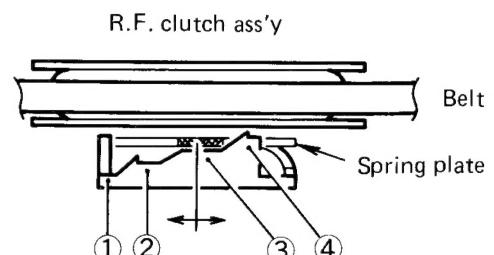


Fig. 20

How to Engage Dial Cord

1. Turn the dial drum fully counterclockwise (to the lowest frequency).
2. Use tetrox cord (795 mm long and 0.5 mm in diameter) with applied micro wax.
3. Install the string in the sequence of the numbers.

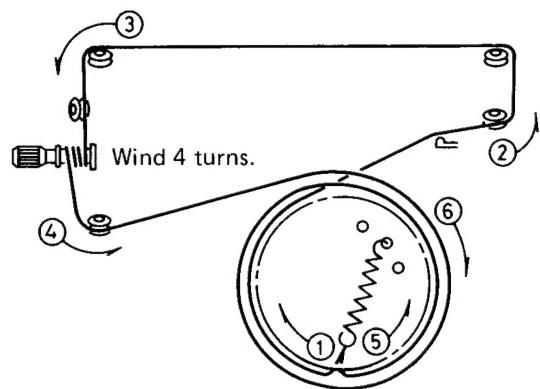


Fig. 21

Adjustment of Cassette Recorder Amplifier

■ Adjustments location

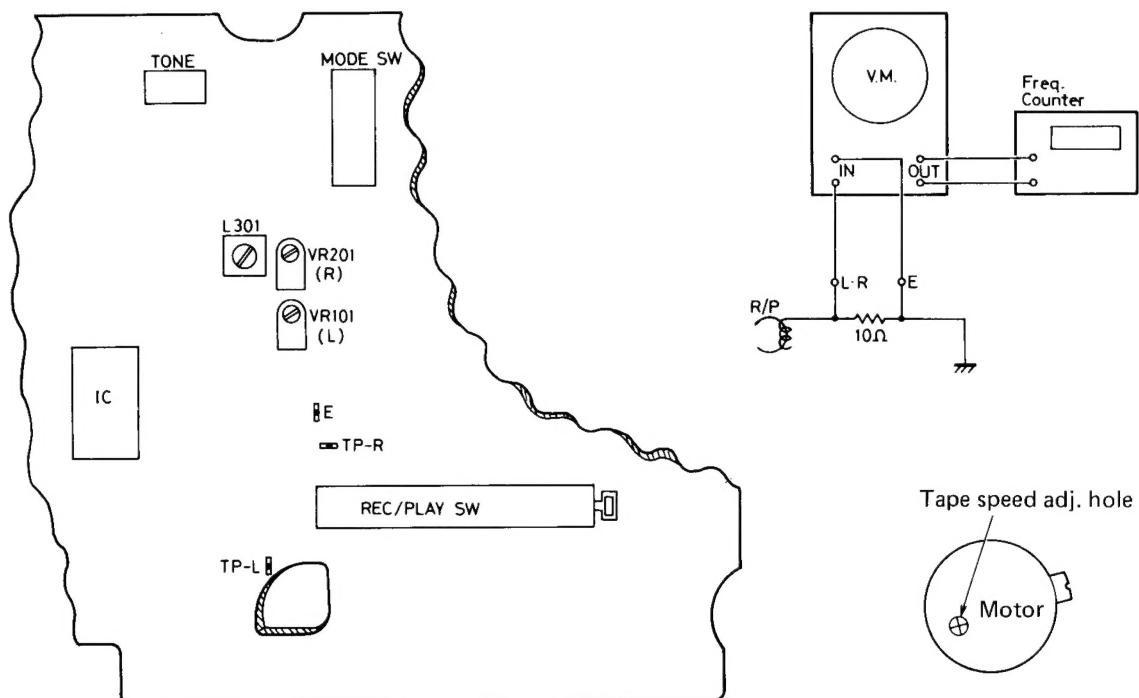


Fig. 22

Adjust in the following sequence.

1. Head azimuth

Connect an oscilloscope to the Ext. Spk. jacks. Using test tape VTT-657 (8 kHz, -15 dB), adjust so the phase difference between the L and R outputs is 0° and maximize the output level at the same time.

2. Bias frequency

Connect a frequency counter across TP-L and TP-R. Adjust L301 so that the counter reads 70.0 kHz.

(Beat cut switch — STEREO) — Refer to Fig. 22.

3. Bias current

Connect an electronic voltmeter across TP-L and TP-R. Adjust VR101 and VR201 so that the voltmeter reads 4.2 mV/10 ohms (420 μ A).

4. Tape speed

Connect a frequency counter to the Ext. Spk. jacks. Playing back test tape VTT656 (3,000 Hz), adjust the semi-fixed resistor (VR701) in the motor so that the frequency counter reads 3,010 Hz.

Tuner Alignment

Output Measuring: Speaker terminal (Impedance = 3.2Ω), output level 50 mW (0.4 V/ 3.2Ω)

AM IF & RF Alignment

Input (SSG): Modulation 400 Hz, Modulated to 30%

Step	Frequency Band	Input Signal		Place to be aligned	Set the V. Capacitor to
		Frequency	Given to		
1	MW (IF)	455 kHz	Loop Antenna		T2, 4, 5
2		Repeat the Step 1, and adjust for no further improvement.			
3	LW	145 kHz	Loop Antenna	L8	Maximum
4		360 kHz		TC8	Minimum
5		Repeat the Steps 3 & 4.			
6		160 kHz	Loop Antenna	L5	160 kHz Signal
7		350 kHz		TC5	350 kHz Signal
8		Repeat the Steps 6 & 7, and adjust for no further improvement.			
9	MW	520 kHz	Loop Antenna	L7	Maximum
10		1650 kHz		TC7	Minimum
11		Repeat the Steps 9 & 10.			
12		600 kHz	Loop Antenna	L4	600 kHz Signal
13		1400 kHz		TC4	1400 kHz Signal
14		Repeat the Steps 12 & 13, and adjust for no further improvement.			
15	SW	5.8 MHz	Rod Antenna through Dummy Antenna	L6	Maximum
16		18.6 MHz		TC6	Minimum
17		Repeat the Steps 15 & 16.			
18		6.0 MHz	Rod Antenna through Dummy Antenna	L3	6.0 MHz Signal
19		18.0 MHz		TC3	18.0 MHz Signal
20		Repeat the Steps 18 & 19, and adjust for no further improvement.			

FM IF & Discriminator Alignment

Input (Sweep Generator) : TP5 (hot)

Output (Oscilloscope) : IF TP9 (hot) & TP10
Discriminator TP9 (hot) & TP10

Step	Mode	Place to be aligned	Waveform
1	IF	T1	Fig. 23
2	Discriminator	T3	Fig. 24

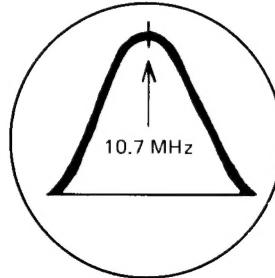


Fig. 23

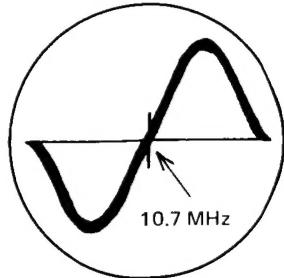


Fig. 24

FM RF Alignment

Input (SSG): Use $75\ \Omega$ terminal, modulation 400 Hz modulated to 22.5 kHz deviation.
Connect Hot side to TP1 and Cold side to TP3.

Step	Frequency Band	Input Signal		Place to be aligned	Set the V. Capacitor to
		Frequency	Given to		
1	FM	87.5 MHz	TP1 & TP3	L2	Maximum
2		109 MHz		TC2	Minimum
3		Repeat the Steps 1 & 2.			
4		90 MHz	TP1 & TP3	L1	90 MHz Signal
5		106 MHz		TC1	106 MHz Signal
6		Repeat the Steps 4 & 5, and adjust for no further improvement.			

FM MPX Alignment

A. 19 kHz Alignment (Regular Method)

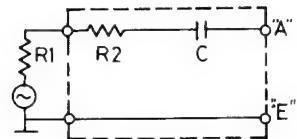
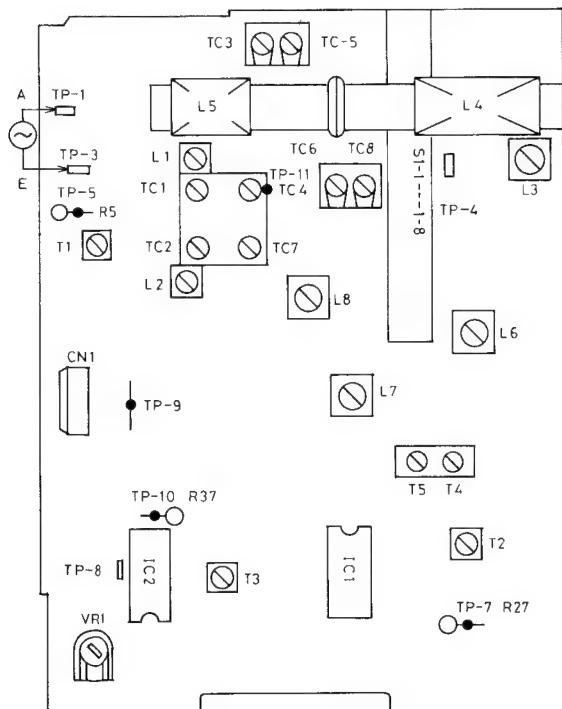
1. Connect a frequency counter to the test point TP8.
2. Supply the monaural signal (98 MHz, 60 dB) across the test points TP1 and TP3.
3. Adjust the variable resistor VR1 so that the frequency becomes $19 \text{ kHz} \pm 150 \text{ Hz}$.

B. 19 kHz Alignment (Simplified Method)

1. Tune to an FM stereo broadcast.
2. Set the variable resistor VR1 to the center position of the range in where the stereo indicator keeps lighting.

Parts Arrangement for Alignment

Dummy Antenna



$$R_1 + R_2 = 80 \Omega$$

$$C = 10 \text{ pF}$$

R1: Output impedance of S.S.G.

Fig. 25

Block Diagram

Tuner Circuit

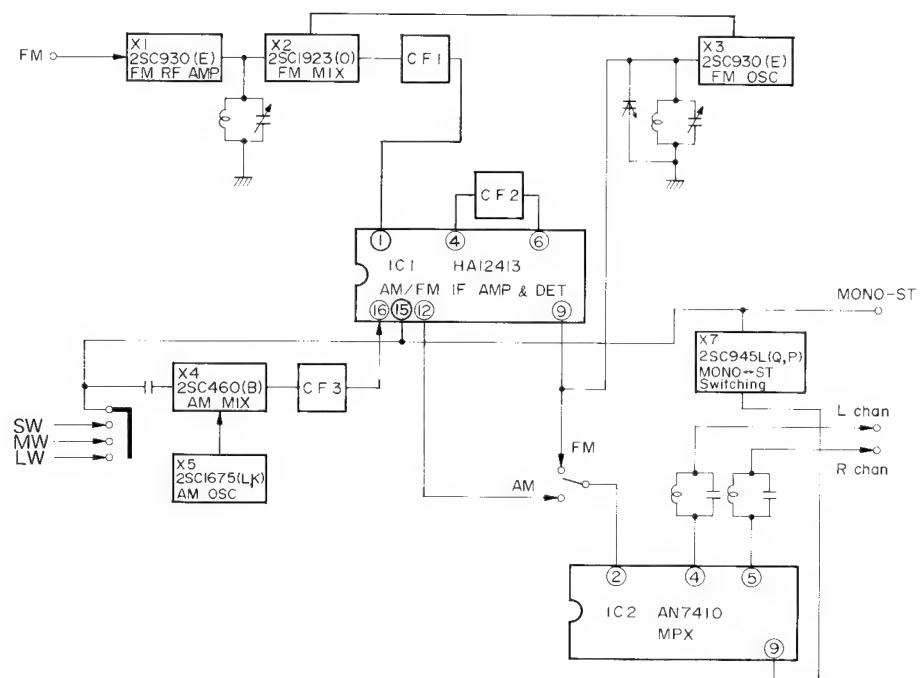


Fig. 26

Amplifier Circuit

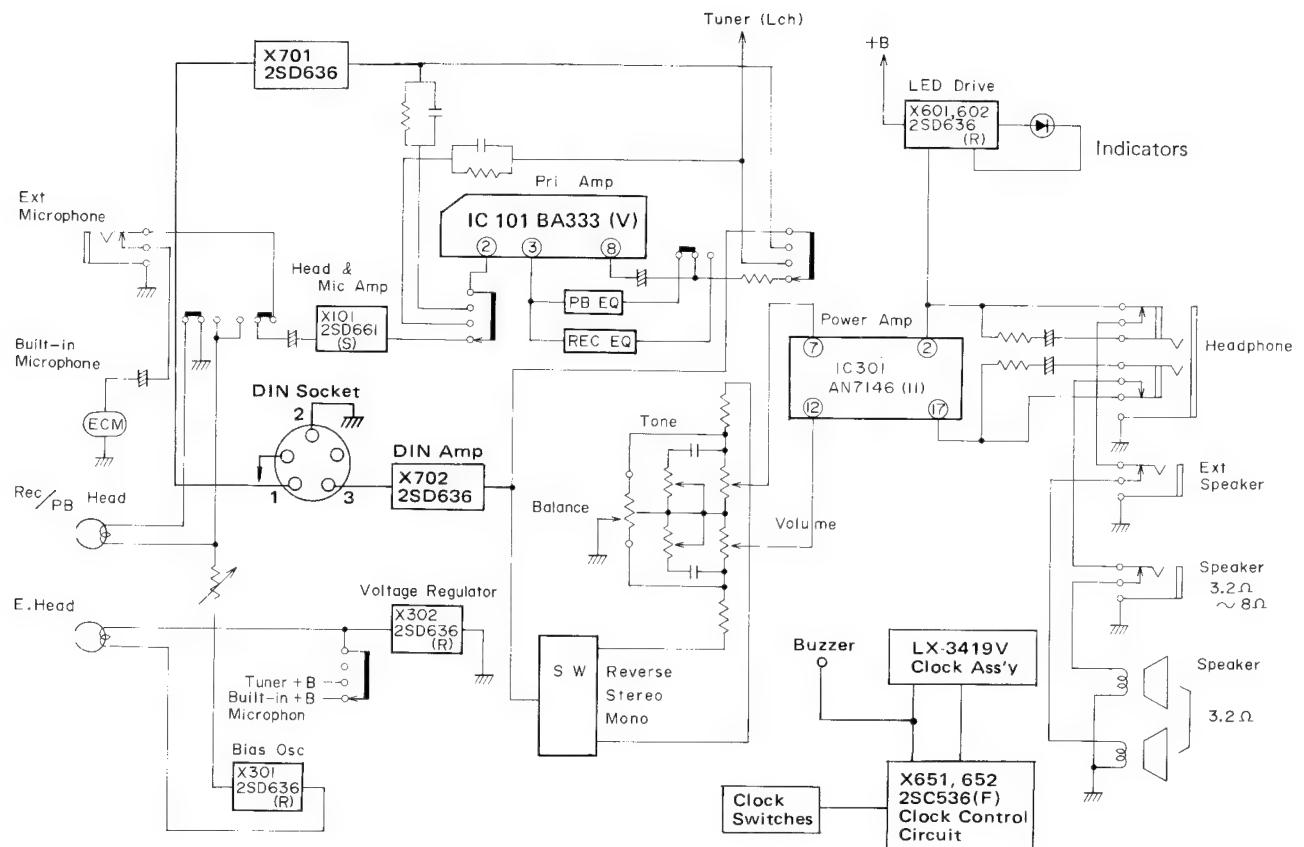


Fig. 27

Schematic Diagram of RC-555KL (Tuner Circuit)

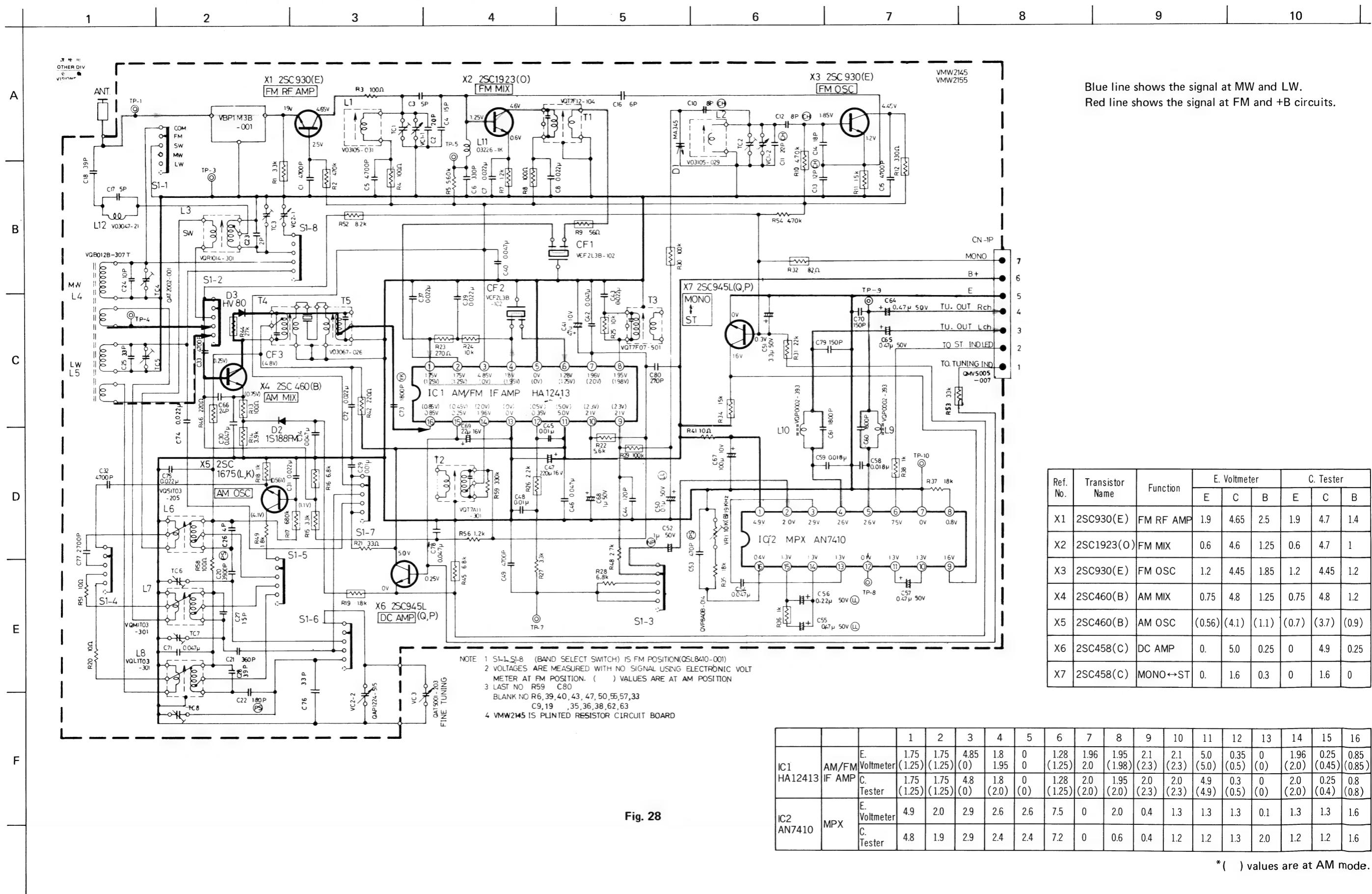


Fig. 28

Schematic Diagram of RC-555KL (Amplifier Circuit)

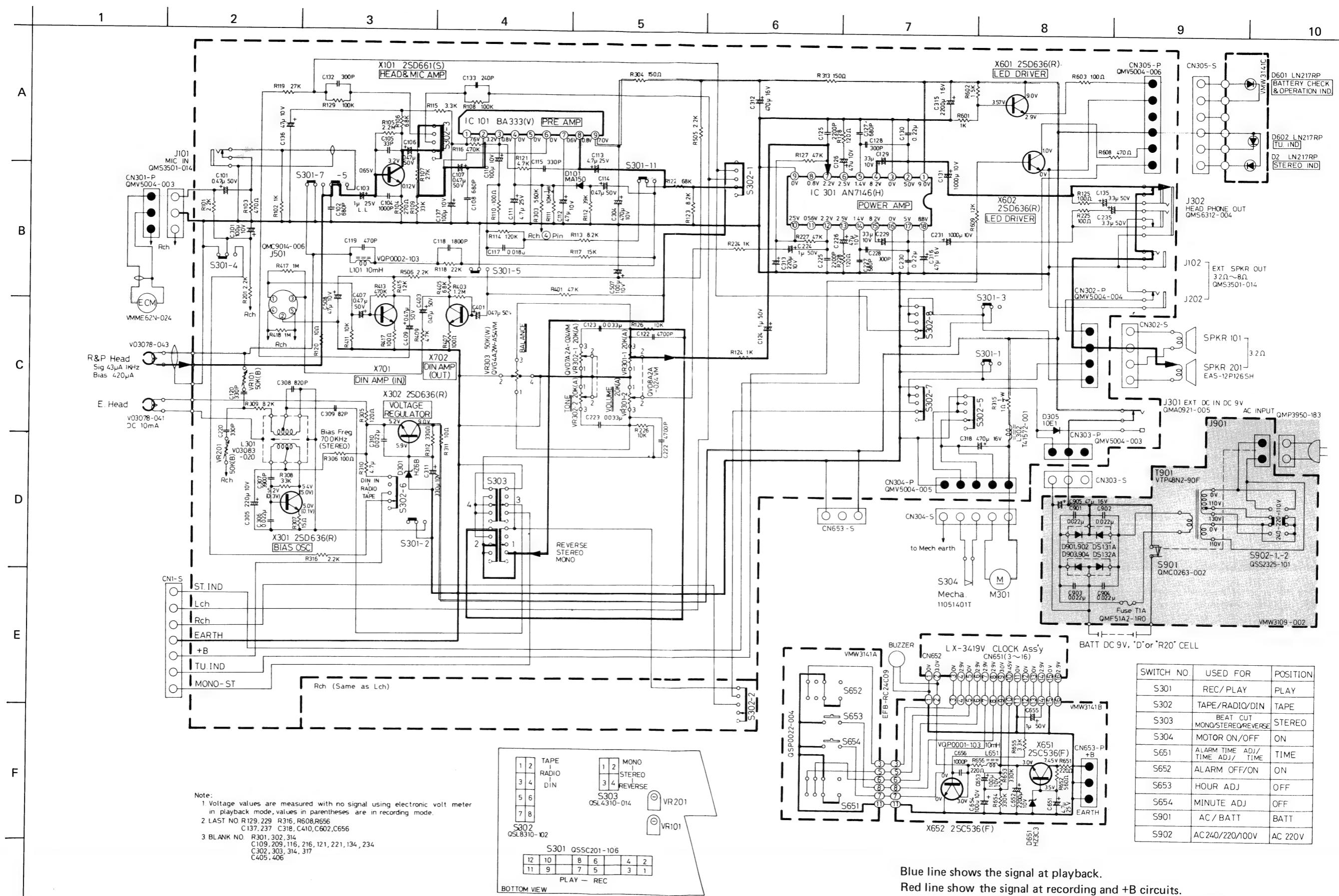


Fig. 29

Blue line shows the signal at playback.

Red line shows the signal at recording and +B circuits.

() parts are safety assurance parts. When replacing those parts, make sure to use the specified one.

Wiring Connection

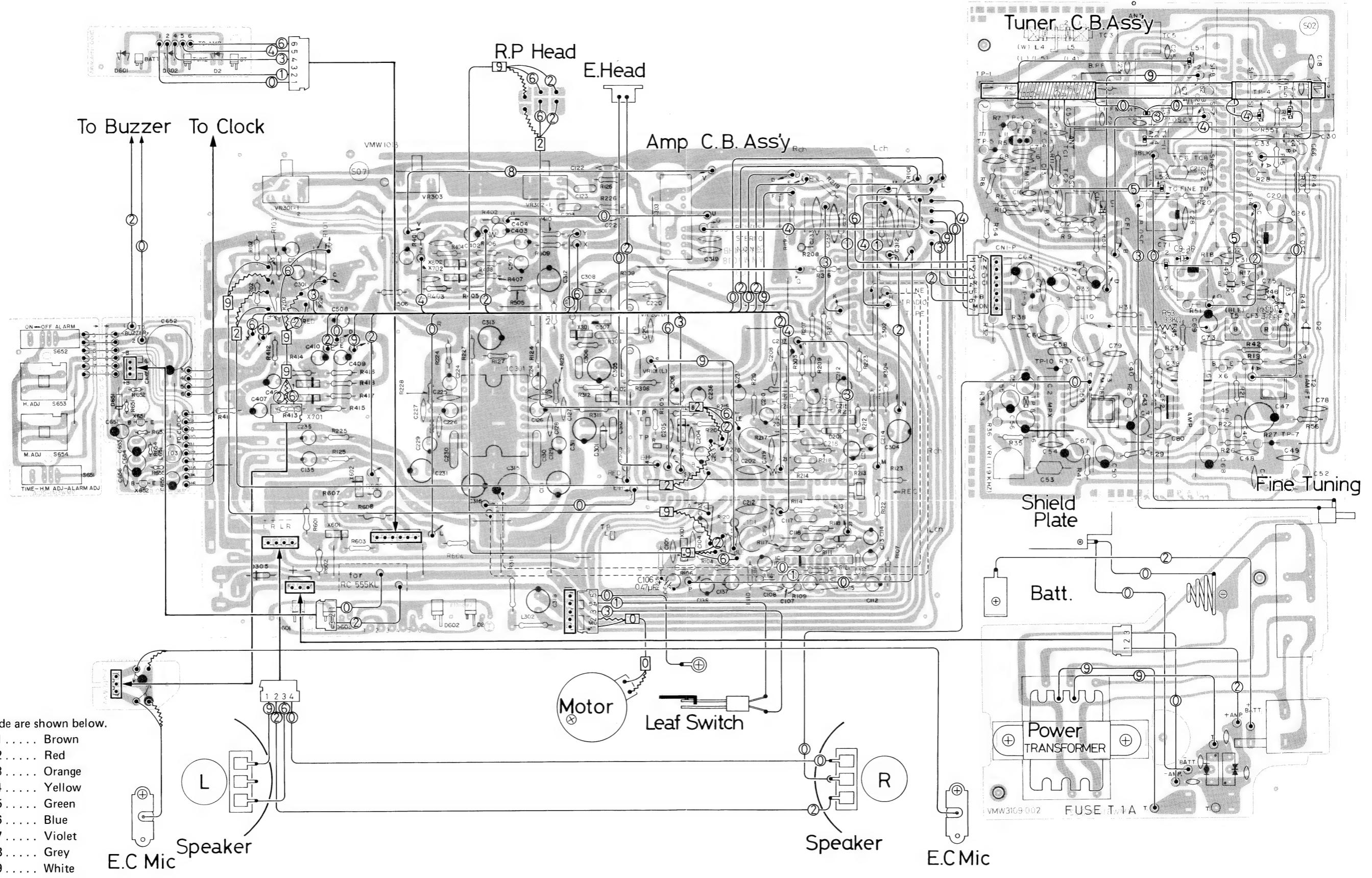


Fig. 30

Mechanical Component Parts

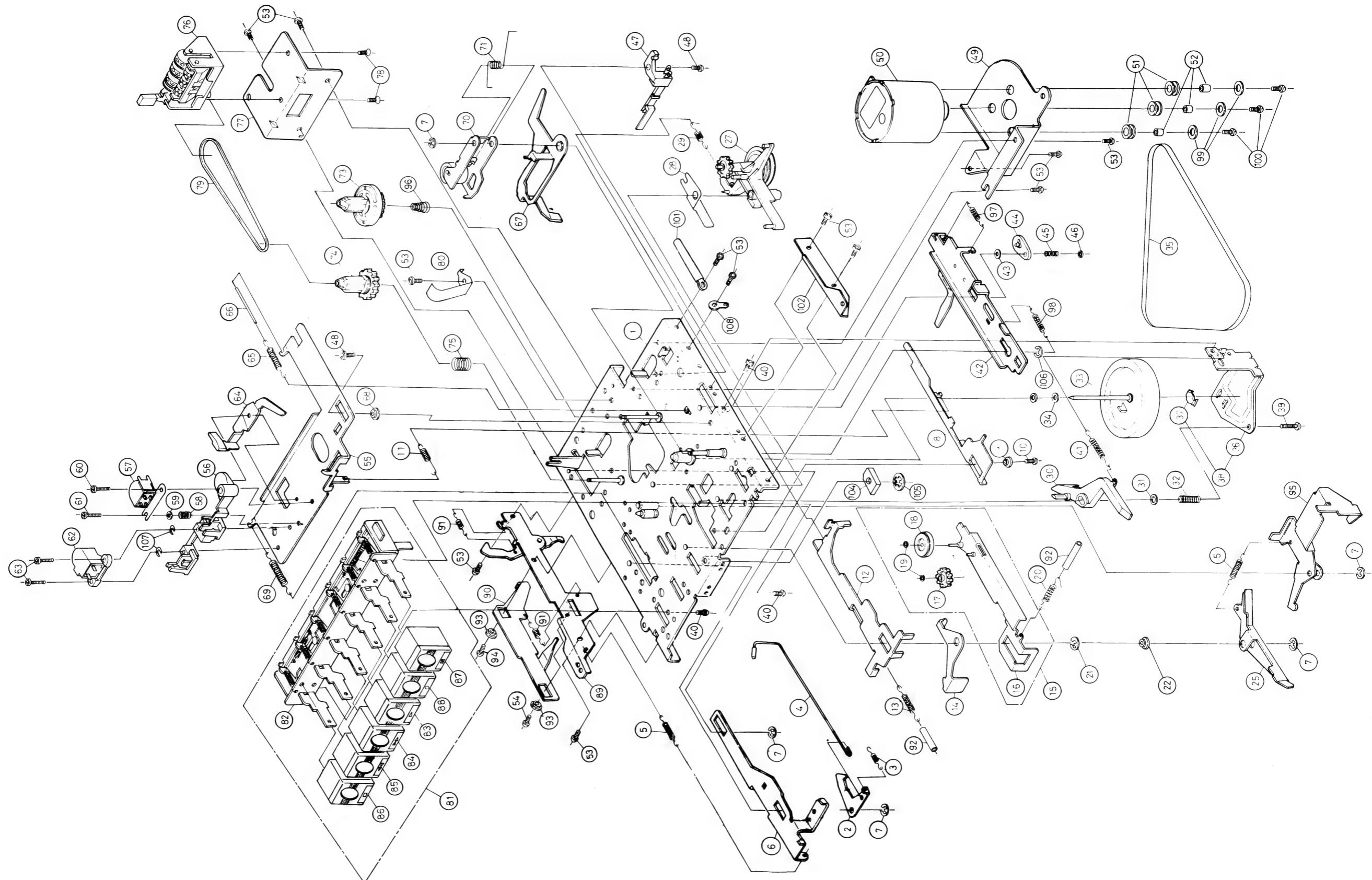
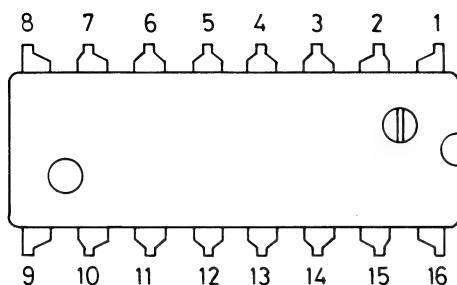


Fig. 31

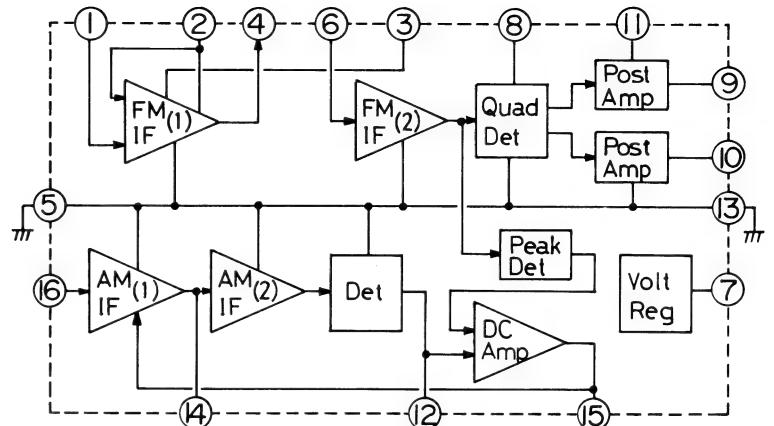
ICs

– HA12413 –

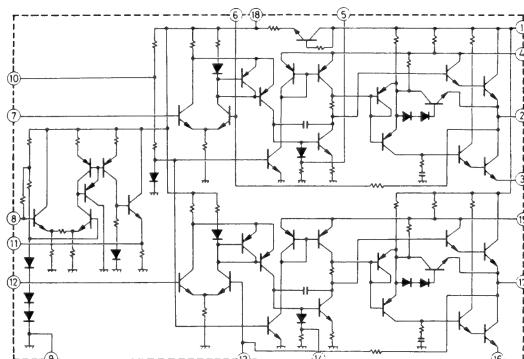
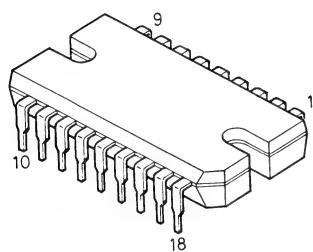
(Top View)



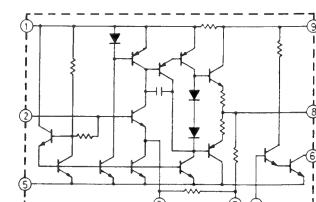
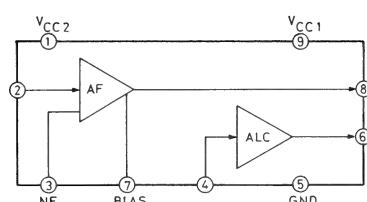
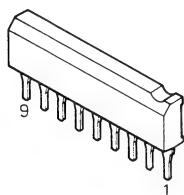
(Block Diagram)



– AN7146 –



— BA333 —



– AN7410 –

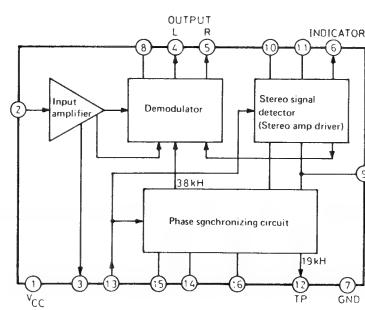
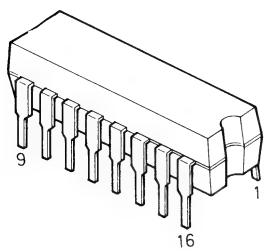


Fig. 32

Mechanical Component Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
1	15840181ZT	Mecha. Chassis Ass'y		1
2	15790205T	Rec. Safety Lever		1
3	2980802T	Spring		1
4	13970202ZT	Rec. Safety Spoke Ass'y		1
5	150102T	Spring	Rec. Slide Lever x 1, Rec. Kick Lever x 1	2
6	15790201T	Rec. Slide Lever		1
7	REE2500	E Ring	for Rec. Slide Lever x 2, Rec. Kick Lever x 1,	5
8	13971002T	Play Slide Lever	Rec. Lever x 1, Pinch Roller Spring x 1	1
9	090302T	Play Slide Lever Collar		1
10	10PZ26080T	Screw		1
11	13490301T	RC. Spring		1
12	12001001T	Main Plate		1
13	7380702T	Main Plate Spring		1
14	12001002T	Rewind Arm		1
15	12000891ZT	F.F. Idler Arm Ass'y		1
16	12000881ZT	F.F. Idler Arm Sub Ass'y		1
17	12000802BT	Idler Gear		1
18	12000804T	Take-up Roller		1
19	12001503T	Washer		2
20	6300403T	F.F. Idler Arm Spring		1
21	REE4000	E Ring		1
22	13332104T	Collar		1
23	13971005T	Guide Plate		1
24	16100604T	Polyslider Washer	ø 1.6 x ø 3.8 x t 0.3	1
25	—	—		—
26	—	—	Blank No.	—
27	13970791ZT	RF. Clutch Ass'y	J24	1
28	12021001T	Rew. Spring Plate		1
29	12000709T	RF. Clutch Arm Spring		1
30	12001102T	Auto Stop Lever	J24	1
31	WNS3000Z	Washer	ø 3.3 x ø 8 x t 0.5	1
32	14310901T	Thrust Spring		1
33	12000903T	Flywheel Ass'y		1
34	3280712T	Polyslider Washer	ø 2.1 x ø 4 x t 0.25	2
35	12000904T	Main Belt		1
36	12000901T	Flywheel Bracket		1
37	12000906T	Spacer		1
38	12000991ZT	Flywheel Bracket Ass'y		1
39	SPSP2618Z	Screw		1
40	10PZ26050T	Screw	for Flywheel Bracket x 1, Push Button x 2	3
41	12001103T	Auto Stop Lever Spring		1
42	14071781ZT	Pause Slide Lever Ass'y		1
43	15101201T	Collar		1
44	12221702T	Pause Lever		1
45	13231701T	Pause Lever Spring		1
46	12601501T	Special Washer	ø 1.7 x ø 5 x ø 0.4	1
47	MSW-0087NKT	Leaf Switch		1
48	23BZ26050T	Tap. Screw		1
49	15791201T	Motor Bracket		1
50	15791282ZT	Motor Ass'y		1
51	F4641-001	Rubber Cushion		3
52	14311202T	Collar		3
53	20PZ26040T	Tap. Screw		12
54	20PZ26060T	"		1
55	12600301T	Head Panel		1

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
56	12000302T	Head Block	J24	1
57	V03078-043	R/P Head		1
58	15600305T	R/P Head Spring		1
59	WSS2000N	Washer		1
60	72PZ20110T	Cap. Screw	$\phi 2.3 \times \phi 4.3 \times t 0.4$	1
61	SPSX2011R	PM. Screw		1
62	V03078-041	E. Head		1
63	72PU20120T	Cap. Screw		2
64	12001193ZT	Detect Plate Ass'y		1
65	14000303T	Head Panel Spring (L)		1
66	—	Tube	$\phi 1.4 \times \phi 0.8 \times L24$	1
67	12221705T	Pause Arm Lever		1
68	4080411T	Head Panel Collar		1
69	12000303T	Head Panel Spring (R)		1
70	12600491ZT	Pinch Roller Ass'y		1
71	12600402T	Pinch Roller Spring		1
72	—	—	Blank No.	—
73	12000593ZT	Take-up Reel Ass'y	J24	1
74	13970692ZT	Supply Reel Ass'y	J24	1
75	12910601T	Spring	for Back Tension	1
76	VKC5103-001S	Tape Counter	H55	1
77	15841601T	Counter Bracket		1
78	SSSP3005ZS	Screw		2
79	1891003T	Counter Belt		1
80	6010101T	Pack Spring		1
81	15791495ZT	Push Button Switch Composite Ass'y		1
82	15791494ZT	Push Button Switch Ass'y		1
83	VXP3050-007	Push Button	for Play	1
84	VXP3050-003	"	for FF	1
85	VXP3050-004	"	for Rew.	1
86	VXP3050-005	"	for Stop	1
87	VXP3050-001	"	for Pause	1
88	VXP3050-006	"	for Rec.	1
89	15841381ZT	Eject Bracket Ass'y		1
90	15161302T	Eject Lever		1
91	581205T	Spring		2
92	—	Tube		1
93	9071904T	Collar		2
94	20PZ26070T	Tap. Screw		2
95	15840201T	Rec. Kick Lever	Head Panel Collar x 1, Eject Lever x 1	1
96	14300501T	Spring	for Take-up Disk	1
97	180311T	"	for Pause Arm	1
98	180502BT	"	for Pause Slide Arm	1
99	031512T	Washer	$\phi 2.6 \times \phi 8 \times t 0.8$	3
100	SPSP2609Z	Screw	for Motor	3
101	4660901T	Wire Clamp		1
102	15841602T	Side Bracket		1
103	150102T	Spring		1
104	15790103T	Rubber Sheet		1
105	RDS3000F	CS Ring		1
106	REE2000	E Ring		1
107	13270412A	(U) Washer	for Head Adjust $t 0.1$	2
"	13270412B	"	for Head Adjust $t 0.2$	2
"	13270412C	"	for Head Adjust $t 0.3$	2
108	021501T	Terminal Lug		1

Cabinet Assembly Parts

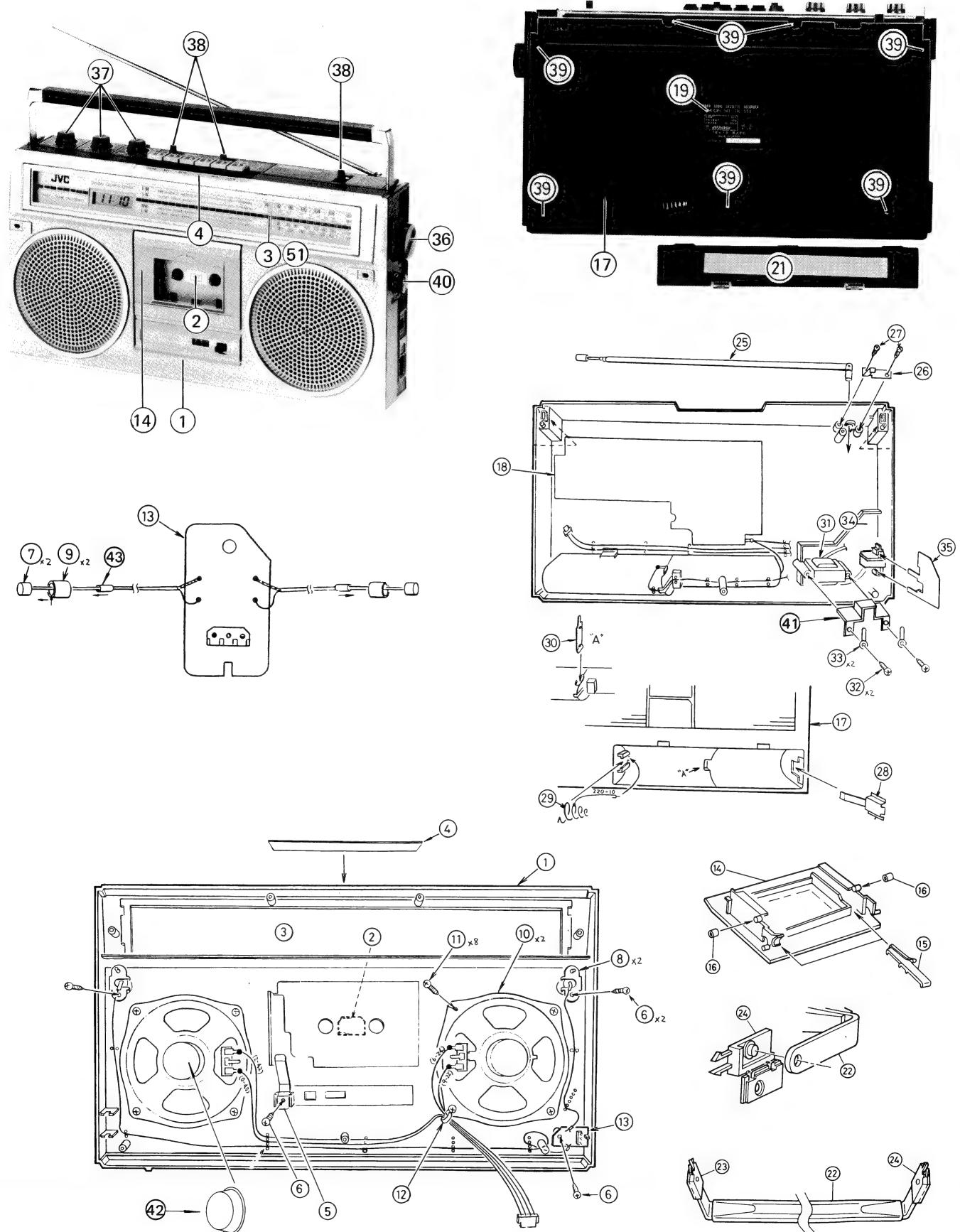


Fig. 33

Cabinet Assembly Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
(1-4)	ZCRC555KL-CBF	Front Cabinet		1 set
1	VJC1097-001	Front Cabinet		1
2	VJD4005-002	Reflection Plate		1
3	VJK3149-001	Dial Lens		1
4	VJD4358-002	Mecha. Plate		1
5	VKY4165-001	Door Spring		1
6	SBSF3010Z	Tap. Screw	Door Spring x 1, Mic. Bushing x 2, P.W.B. x 1	4
7	VMME62N-024	E. C. Mic.		2
8	VYH4298-001	Holder		2
9	VYH4102-001	Mic. Bushing		2
10	EAS12P126SH	Speaker	SPKR101, SPKR201	2
11	SBSF3008Z	Tap. Screw		8
12	VKZ4001-007	Wire Holder		1
13	—	P. W. Board	Mic. Wire Terminal	1
14	VJT4027-00A	Cassette Door Ass'y		1
15	V44910-002	Cassette Spring		2
16	VYH4275-001	Rubber Ring		2
(17-21)	ZCRC555KL-CBR	Rear Cabinet		1
17	VJC1098-008	Rear Cabinet		1
18	VYH4474-00A	Shield Ass'y		1
19	VYN5062-019C	Name Plate	JVC	1
21	ZCRC555-BCA	Battery Cover Ass'y		1
22	VJH4011-00F	Handle Ass'y		1
23	VYH4467-001	Handle Supporter	(L)	1
24	VYH4468-001	"	(R)	1
25	QZR4333-001	Rod Antenna		1
26	VYH4469-001	Rod Antenna Holder		1
27	SBSF3008Z	Tap. Screw		2
28	VYH4010-003	Battery Contact		1
29	53738-1	Battery Spring		1
30	VYH4104-002	Contact		1
31	VTP48N2-90F	Power Transformer	T901	1
32	SBSF3014C	Tap. Screw		2
33	VKZ4001-010	Wire Holder		2
34	VMW3109-002	P. W. Board	Power Supply	1
35	VYH4470-001	Plate		1
36	VXL4106-002	Tuning Knob		1
37	VXL4107-002	Knob		3
38	VXQ4026-003	Lever Cap		3
39	SBSF3018R	Tap. Screw	for F. Cabinet + R. Cabinet	7
40	VXKM520-20012	Fine Tuning Knob		1
42	VYH4599-001	Shield		1
43	VYTH402-001	Spacer		2
44	VYSA1R8-049	"		1
45	VYSR105-004	"		1
46	VYSA1R4-056	"		4
48	VYSH106-020	"		1
49	VYSA1R6-009	"		4
50	VJD4501-001	Plate		1
51	VJK2133-001	Dial Scale		1
52		Connector	CN651	1

Chassis Base Assembly Parts

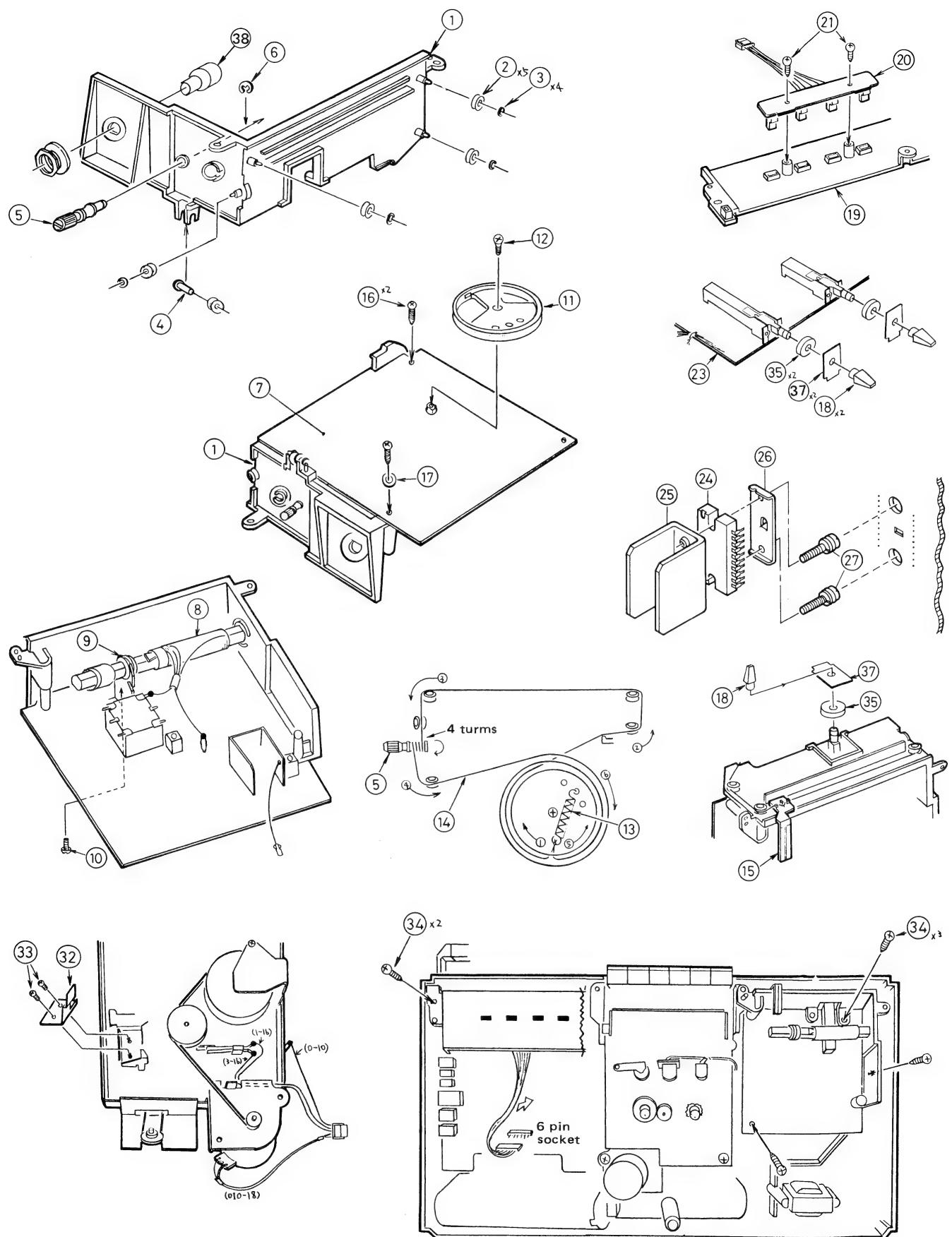


Fig. 34

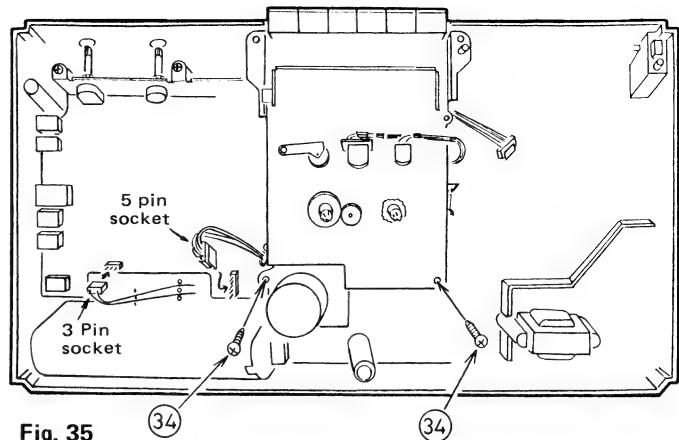
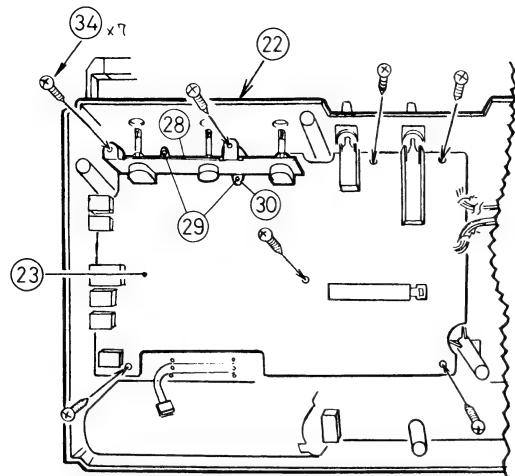


Fig. 35

Chassis Base Ass'y Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
1	VYH2118-001	Chassis Base	D36	1
2	VYH4002-001	Roller		5
3	V42562-1	Special Washer		4
4	RTA4008	Rivet		1
5	VYH4009-004	Tuning Shaft		1
6	REE3000X	E Ring		1
7	—	P. W. Board Ass'y		1
8	VQB012B-307T	Bar Antenna Ass'y		1
9	VYH4129-001	Bar Antenna Holder		1
10	SPSP3006ZS	Screw		1
11	QZD1108-002	Dial Drum		1
12	SSSP2608Z	Screw		1
13	50153-3	Spring		1
14	VHR2TT9-05A	Dial Rope	Tetoron $\phi 0.5 \times 795$ mm	1 set
15	VJN4045-001	Needle		1
16	SBSF3010Z	Screw		2
17	Q03095-206	Washer		1
18	VXQ4026-003	Lever Cap		1
19	VJK2127-005	Dial Scale		1
20	—	P. W. Board	for LED (LN217RP = LED x 4)	1
21	SBSF3008Z	Tap. Screw		2
22	ZCR555LB-CBR	Rear Cabinet Ass'y		1 set
23	—	P. W. Board Ass'y		1
24	AN7146(H)	IC		1
25	VYH4295-002	Radiation		1
26	VYH4334-001	E. Plate		1
27	LPSP3012ZS	Screw		2
28	VYH4471-001	Volume Bracket		1
29	SPSP3006Z	Screw		2
30	WBS3000N	T. Lock Washer		1
32	VKY4176-001	Rec. Spring		1
33	SPSP2604Z	Screw		2
34	SBSF3012C	Tap. Screw		14
35	VYSH210-003	Spacer		3
37	VYTA452-001	"		3
38	VXKM520-20012	Fine Tuning Knob		1
39	QCS11HJ-151	C. Capacitor		1
40	VYSH208-002	Spacer		1
41	VYSH102-022	"		1
42	VYSA1R6-021	"		1

Tuner P.W. Board Parts

Tuner

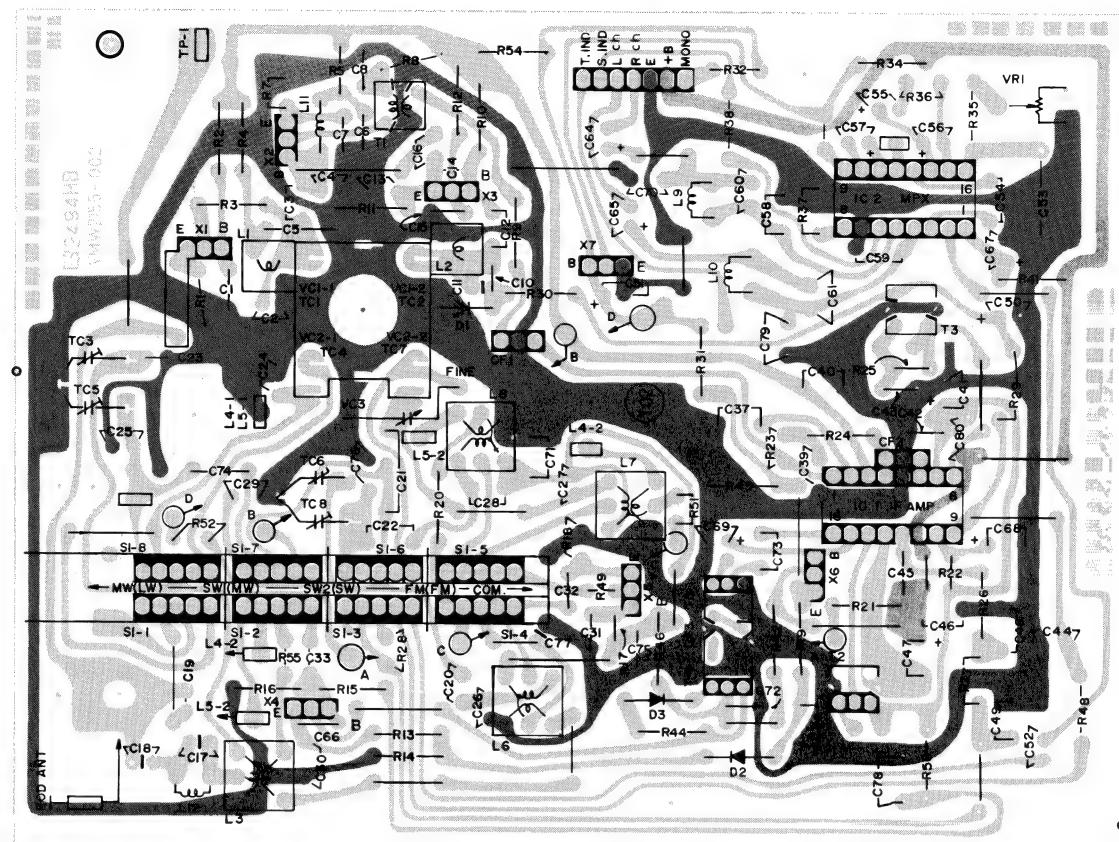


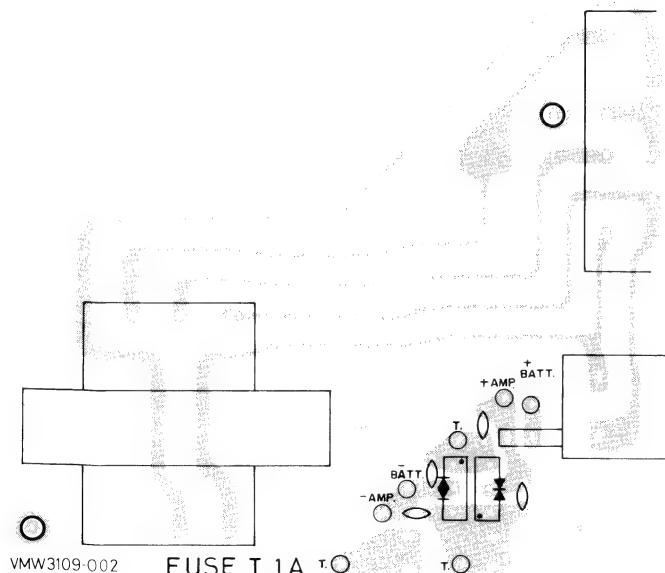
Fig. 36

Positive line

Common line

Power Supply

Mic Wire Terminal



VMW3109-002 FUSE T 1A T

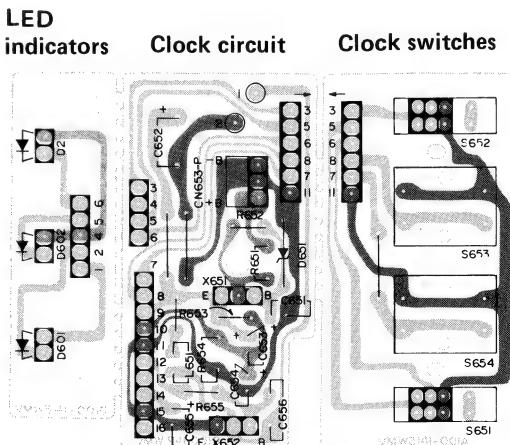


Fig. 37

Tuner P.W. Board Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
X1, 3	VMW2155-002	P. W. Board		1
X2	2SC930(E)	Transistor		2
X4	2SC1923(O)	"		1
X5	2SC460(B)	"		1
X6, 7	2SC1675(L,K)	"		1
	2SC945L(O,P)	"		2
IC1	HA12413	I.C.		1
IC2	AN7410	"		1
D1	MA345	Vari. Cap.		1
D2	1S188FM	Ge. Diode		1
D3	HV80	Si. Diode		1
S1-1 ... 1-8	QSL8410-001	Lever Switch		1
	V44611-001	Formed Bus Wire		1
	" -002	"		3
	" -005	"		1
	" -006	"		1
CF1, 2	VBP1M3B-001	B.P. Filter		1
	VCF2L3B-102	C. Filter		2
L1	V03105-031	RF Coil	FM	1
L2	" -029	"	"	1
L3	VQR1014-301	"	SW	1
L4, 5	VQB012B-307T	Bar Ant. Ass'y		1
L6	VQS1T03-205	Osc. Coil	SW	1
L7	VQM1T03-301	"	MW	1
L8	VQL1T03-301	"	LW	1
L9, 10	VQP0002-393	Inductor		2
L11	03226-1K	"		1
L12	V03047-21	RF Coil		1
	VYH4129-001	Bar Ant. Holder		1
	SPSP3006ZS	Screw		1
T1	VQT7F12-104	IFT		1
T2	VQT7A11-301	"		2
T3	VQT7F07-501	"		1
T4, 5, CF3	V03067-026	"		1
	VYH4561-001	Shield		1
	VYH4369-002	"		2
VR1	QVP8A0B-014	V. Resistor	10 kΩ	1
R1, 15	QRD141J-332S	C. Resistor	3.3 kΩ ¼ W	2
R2, 10	" -474S	"	470 kΩ "	2
R3, 4, 8, 13	" -101S	"	100 Ω "	4
R5	" -564S	"	560 kΩ "	1
R7	" -122S	"	1.2 kΩ "	1
R9	" -560S	"	56 Ω "	1
R11	" -152S	"	1.5 kΩ "	1
R12	" -331S	"	330 Ω "	1
R14	" -392S	"	3.9 kΩ "	1
R16, 45	" -682S	"	6.8 kΩ "	2
R17	QRD143J-684S	"	680 kΩ "	1
R18, 36	" -102S	"	1 kΩ "	2
R19	QRD141J-182S	"	1.8 kΩ "	1
R20, 41	" -100S	"	10 Ω "	2
R21	" -330S	"	33 Ω "	1
R22	QRD143J-562S	"	5.6 kΩ "	1
R23	" -271S	"	270 Ω "	1
R24	QRD141J-103S	"	10 kΩ "	1
R25	QRD143J-103S	"	10 kΩ "	1
R26	QRD141J-222S	"	2.2 kΩ "	1
R27	" -332S	"	3.3 kΩ "	1
R28	QRD143J-682S	"	6.8 kΩ "	1
R29, 30	QRD141J-104S	"	100 kΩ "	2
R31	" -223S	"	22 kΩ "	1

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
R32	QRD143J-271S	C. Resistor	270 Ω $\frac{1}{4}$ W	1
R34	QRD141J-153S	"	15 k Ω "	1
R35, 37	" -183S	"	18 k Ω "	2
R38	" -102S	"	1 k Ω "	1
R42, 46	" -221S	"	220 Ω "	2
R44	" -273S	"	27 k Ω "	1
R48	" -272S	"	2.7 k Ω "	1
R51	QRD143J-100S	"	10 Ω "	1
R52	" -822S	"	8.2 k Ω "	1
R53	QRD141J-333S	"	33 k Ω "	1
R54	" -474S	"	470 k Ω "	1
R56	" -122S	"	1.2 k Ω "	1
R58	QRD143J-101S	"	100 Ω "	1
R59	" -334S	"	330 k Ω "	1
C1, 5	QCF11HP-472	C. Capacitor	0.0047 μ F 50 V	2
C2	QCS11HJ-200	"	20 pF "	1
C3, 17	" -5R0	"	5 pF "	2
C4	" -150	"	15 pF "	1
C6	" -331	"	330 pF "	1
C7, 8, 37, 74	QCF11HP-223	"	0.022 μ F "	4
C9	OCS11HJ-3R0	"	3 pF "	1
C10, 12	QCT05CH-8R0	"	8 pF "	2
C11	" -220	"	22 pF "	1
C13	" -120	"	12 pF "	1
C14	QCS11HJ-180	"	18 pF "	1
C15, 32, 33, 49	QCY41HK-472	"	0.0047 μ F "	4
C16	QCS11HJ-6R0	"	6 pF "	1
C18, 28	" -390	"	39 pF "	2
C20	QFS41HJ-392	P. Capacitor	0.0039 μ F "	1
C21	QCS11HJ-361	C. Capacitor	360 pF "	1
C22	QFS21HJ-181	P. Capacitor	180 pF "	1
C23	QCS11HJ-2R0	C. Capacitor	2 pF "	1
C24	" -100	"	10 pF "	1
C25	" -330	"	33 pF "	2
C26	" -2R0	"	2 pF "	1
C27	" -120	"	12 pF "	1
C29, 48	QCC11EM-103	"	0.01 μ F 25 V	2
C30, 34, 54, 71, 78	" -473	"	0.047 μ F "	5
C31, 39, 43, 75	" -223	"	0.022 μ F "	4
C40, 42, 46	QFM41HM-473	M. Capacitor	0.047 μ F 50 V	3
C41	QET41AR-476	E. Capacitor	47 μ F 10 V	1
C44	QCS11HJ-121	C. Capacitor	120 pF 50 V	1
C45	QFM41HM-103	M. Capacitor	0.01 μ F "	1
C47	QET41CR-227	E. Capacitor	220 μ F 16 V	1
C50	QEC41HM-104	"	0.1 μ F 50 V	1
C51	QET41HR-335	"	3.3 μ F "	1
C52	QEN41HA-105N	"	1 μ F "	1
C53	QFS21HJ-471	P. Capacitor	470 pF "	1
C55	QEC41HM-474	E. Capacitor	0.47 μ F "	1
C56	" -224	"	0.22 μ F "	1
C57, 64, 65	QET41HR-474	"	0.47 μ F "	3
C58, 59	QFM41HK-183	M. Capacitor	0.018 μ F "	2
C60, 61, 73	QCY41HK-182	C. Capacitor	0.0018 μ F "	3
C66	QCS11HJ-240	"	24 pF "	1
C67	QET41AR-107	E. Capacitor	100 μ F 10 V	1
C68	QET41HR-105	"	1 μ F 50 V	1
C69	QET41CR-226	"	22 μ F 16 V	1
C70, 79	QCS11HJ-151	C. Capacitor	150 pF 50 V	2
C72	QFM41HM-223	M. Capacitor	0.022 μ F "	1
C77	QCY41HK-272	C. Capacitor	0.0027 μ F "	1
C80	QCS11HJ-271	"	270 pF "	1
C99	" -471	"	470 pF "	1
VC1-1, 1-2, VC2-1, 2-2, TC4, 7	QAP1224-515	V. Capacitor		1
VC3	QAT5001-203	M.V. Capacitor		1
TC3, 5, TC6, 8	QAT2002-001	T. Capacitor		2
CN1-P	QMV5005-007	Connector		1
	V44611-001	Formed Bus Wire		2
	" -002	"		4
	" -003	"		4
	" -005	"		4
	" -006	"		2
	VKL3143-001	Board in Tab		8

Power Supply P.W. Board Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
D901, 902	VMW3109-002	P.W. Board		1
D903, 904	DS131A	Si. Diode		1
C901, 902, 903, 904	DS132A	"		1
S901, J901	QCC11EM-223	C. Capacitor	0.022 μ F 25 V	4
	QMC0263-002	AC Jack		1
S902-1... 2	QSS2325-101	Slide Switch		1
T901	VTP48N2-90F	Power Transformer		1
C905	QET41CR-476	E. Capacitor	47 μ F 16 V	1
	QMF51A2-1R0	Fuse		1
	VYH4598-001	Shield		1
	A44594-001	Fuse Clip		2
Other P.W. Board Parts List				
(LED)				
D2, 601, 602	VMW3141-001C	P.W. Board		1
	LN217RP	LED		3
(MIC)				
	VMW3110-002	P.W. Board	Mic. Wires	1

Amplifier P.W. Board Parts

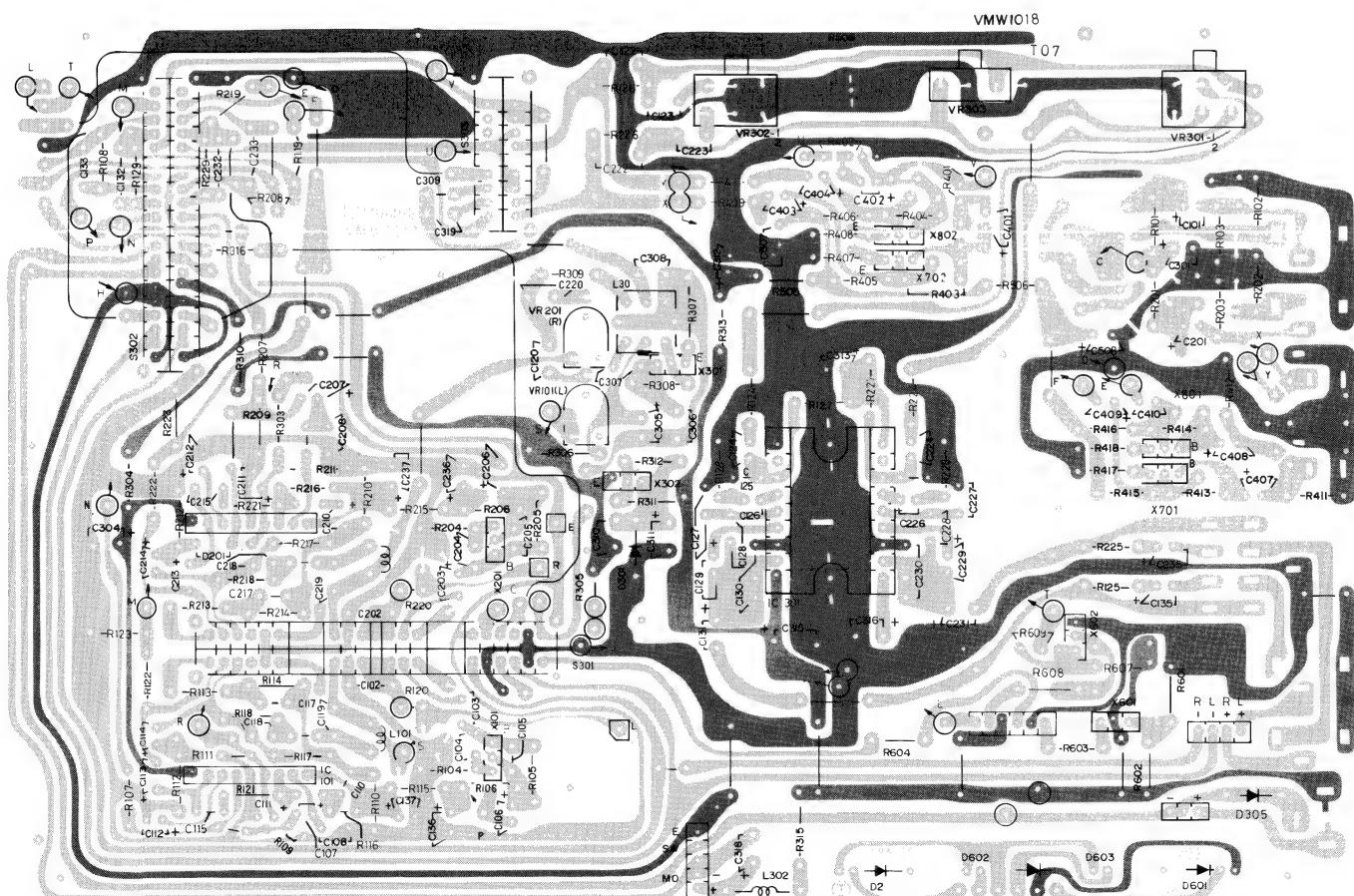


Fig. 38

Amplifier P.W. Board Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	VMW1018-203A V44611-001 " -002 " -005 " -006	P.W. Board Formed Bus Wire " " " "	Amp.	1 8 12 5 2
S303-1 ... 12 S302-1 ... 8 S303-1 ... 4 X101, 201, 701, 801 X301, 302, 601, 602, 702, 802	QSSC201-106 QLS8310-102 QLS4310-014 2SD661(S) 2SD636(R)	Slide Switch Lever Switch " Transistor "	Record, Play T-R-L Stereo-Mono. or 2SD661(T)	1 1 1 4 6
D101, 201 D301 IC101, 201 IC301	MA150 HZ6B BA333(V) AN7146(H)	Si. Diode Zener Diode I.C. "		2 1 2 1
VR101, 201 VR301-1, 2	VYH4295-002 VYH4334-001 LPSP3012ZS QVP8A0B-054 QVD8A2A-024VM	Radiation E. Plate Screw V. Resistor "	Bias Adj. 50 kΩ Volume 20 kΩ	1 1 2 2 1
VR302-1, 2 VR501 L101, 201 L301 L302	QVD7A2A-024VM QVG4A2W-A54VM VQP0002-103 V03083-020 T41572-001	" " Inductor Osc. Coil Inductor	Tone 20 kΩ Balance 50 kΩ Bias Trap Bias Osc. Motor	1 1 2 1 1
C101, 201, 106, 206, 107, 207, 114, 214, 401, 402, 403, 404, 407, 408, 409, 410 C102, 202 C103, 203	QET41HR-474 QCS11HJ-681 QEB41EM-105	E. Capacitor C. Capacitor E. Capacitor	0.47 F 50 V 680 pF " 1 μF 25 V	16 2 2
C104, 204 C105, 205 C108, 208, 127, 227 C110, 210, 137, 237, 301, 507 C111, 211, 113, 213	QCF11EZ-102 QCS11HJ-330 QCY41HK-681 QET41AR-107 QET41ER-475	C. Capacitor " " E. Capacitor "	0.001 μF " 33 pF 50 V 680 pF " 100 μF 10 V 4.7 μF 25 V	2 2 4 6 4
C112, 212, 126, 226, 136, 236 C115, 215, 120, 220 C117, 217 C118, 218 C119, 219	QET41AR-476 QCS11HJ-331 QFM41HK-183 QFM41HJ-182 QCS11HJ-471	" C. Capacitor M. Capacitor " C. Capacitor	47 μF 10 V 330 pF 50 V 0.018 μF " 0.0018 μF " 470 pF "	6 4 2 2 2
C122, 222 C123, 223 C124, 224 C125, 225 C128, 228	QCY41HK-472 QFM41HK-333 QET41HR-105 QCY41HK-222 QCS11HJ-301	" M. Capacitor E. Capacitor C. Capacitor "	0.0047 μF " 0.033 μF " 1 μF " 0.0022 μF " 300 pF "	2 2 2 2 2
C129, 229 C130, 230 C131, 231 C132, 232 C133, 233	QET41AR-336 QFM42AK-224 QET41AR-108 QCS11HJ-301 " -241	E. Capacitor M. Capacitor E. Capacitor C. Capacitor "	33 μF 10 V 0.22 μF 100 V 1000 μF 10 V 300 pF 50 V 240 pF "	2 2 2 2 2
C135, 235 C304 C305, 313 C306, 310 C307	QET41HR-335 QET41AR-477 " -227 QFM41HK-223 " -392	E. Capacitor " " M. Capacitor "	3.3 μF " 470 μF 10 V 220 μF " 0.022 μF 50 V 0.0039 μF "	2 1 2 2 1
C308 C309 C311 C312 C315	QCY41HK-821 QCS11HJ-820 QET41AR-337 QET41CR-477 " -228	C. Capacitor " E. Capacitor " "	820 pF " 82 pF " 330 μF 10 V 470 μF 16 V 2200 μF "	1 1 1 1 1
C316, 508 C318 C319	" -476 " -108 QCS11HJ-251	" " C. Capacitor	47 μF " 1000 μF " 250 pF "	2 1 1

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
R101, 201, 316, 505, 506	QRD141J-222S	C. Resistor	2.2 kΩ 1/4 W	5
R102, 202, 124, 224, 601	" -102S	"	1 kΩ "	5
R103, 203	" -471S	"	470 Ω "	2
R104, 204	" -271S	"	270 Ω "	2
R105, 205	" -225S	"	2.2 MΩ "	2
R106, 206	" -682S	"	6.8 kΩ "	2
R107, 207	" -272S	"	2.7 kΩ "	2
R109	QRD143J-333S	"	33 kΩ "	1
R110, 210, 407, 408	QRD141J-101S	"	100 Ω "	4
R111, 211	QRD121J-106	"	10 MΩ 1/2 W	2
R112, 212	QRD141J-393S	"	39 kΩ 1/4 W	2
R113, 213, 123, 223, 309	" -822S	"	8.2 kΩ "	5
R114, 214	" -124S	"	120 kΩ "	2
R115, 215	" -332S	"	3.3 kΩ "	2
R116	QRD143J-474S	"	470 kΩ "	1
R117, 217	QRD141J-153S	"	15 kΩ "	2
R118, 218	" -223S	"	22 kΩ "	2
R119, 219	" -273S	"	27 kΩ "	2
R120, 220	QRD143J-100S	"	10 Ω "	2
R121, 221, 409, 410	QRD141J-472S	"	4.7 kΩ "	4
R122, 222	" -683S	"	68 kΩ "	2
R125, 225, 417, 418, 603	" -101S	"	100 Ω "	5
R126, 226	" -103S	"	10 kΩ "	2
R127, 227	" -473S	"	47 kΩ "	2
R128, 228	" -121S	"	120 Ω "	2
R129, 229, 108	" -104S	"	100 kΩ "	3
R208	QRD143J-104S	"	100 kΩ "	1
R209, 308	QRD141J-333S	"	3.3 kΩ "	2
R303	" -564S	"	560 kΩ "	1
R304, 313	" -151S	"	150 Ω "	2
R305	QRD143J-121S	"	120 Ω "	1
R306	QRD146K-101	"	100 Ω "	1
R307	" -150	"	15 Ω "	1
R310	" -4R7	"	4.7 Ω "	1
R311	" -100	"	10 Ω "	1
R312	QRD141J-331S	"	330 Ω "	1
R315	QRD121J-1R0	"	1 Ω 1/2 W	1
R401, 402	QRD143J-473S	"	47 kΩ 1/4 W	2
R403, 404	QRD121J-125S	"	1.2 MΩ 1/2 W	2
R405, 406	QRD141J-682S	"	6.8 kΩ 1/4 W	2
R411, 412	" -103S	"	10 kΩ "	2
R413, 414, 216	" -474S	"	470 kΩ "	3
R415, 416	" -123S	"	12 kΩ "	2
R419, 420	" -105S	"	1 MΩ "	2
R608	" -471S	"	470 Ω "	1
R609	QRD143J-123S	"	12 kΩ "	1
J101, 201, 102, 202	QMS3501-014	Jack Ass'y		4
J301	QMA0921-005	Ext. Batt. Jack		1
J302	QMS6312-004	Headphone Jack		1
J501	QMC9014-006	DIN Socket		1
CN302-P	VKL3143-001	Board in Tab	Speaker	3
	QMV5005-004	Connector		1
	V44691-001	Wire Clamp		4
CN303-P	QMV5005-003	Connector		1
CN304-P	" -005	"	Power Mecha.	1
CN305-P	" -006	"	LED	1

Clock Circuit Parts

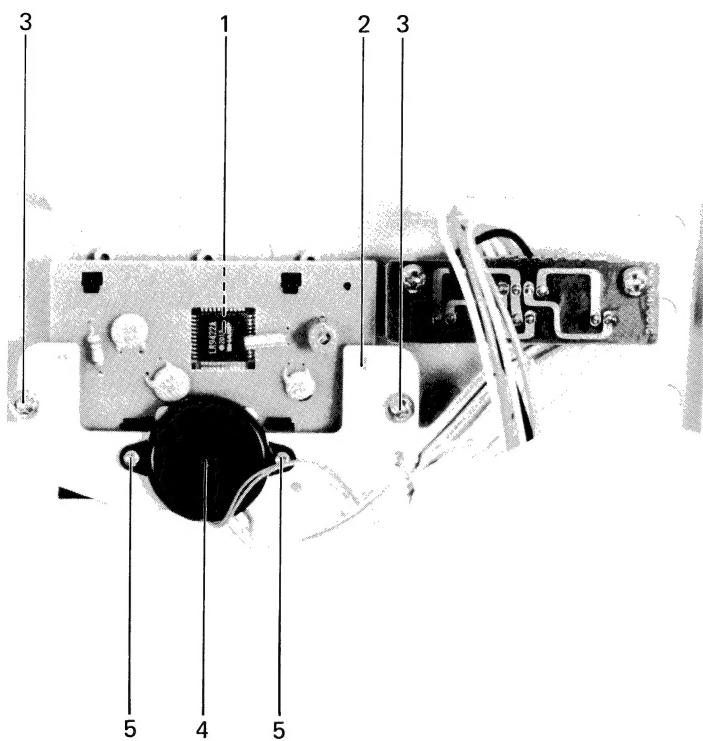


Fig. 39

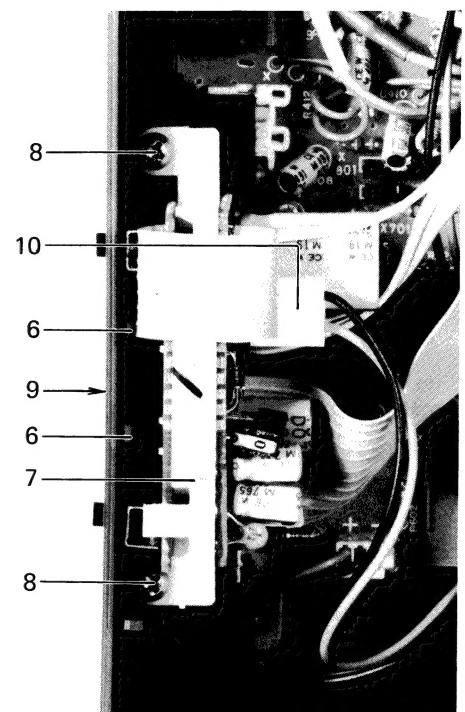


Fig. 40

Clock Relation Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
1	LX-3419V	Clock		1
2	VYH4752-001	Clock Holder		1
3	SBSF3008Z	Tap. Screw		2
4	EFB-RC24C09	Piezoelectric Buzzer		1
5	SPSP2006Z	Tap. Screw		2
6	VXP4134-001	Push Knob		2
7	VYH2129-001	Board Holder		1
8	SBSF3012Z	Tap. Screw		2
9	VJD4501-001	Plate		1
10		Connector	CN652	1
	VYTS406-001	Spacer	for P.W.B.	1
	VYSA1R6-009	"	for Switch	1

Clock P.W. Board Parts

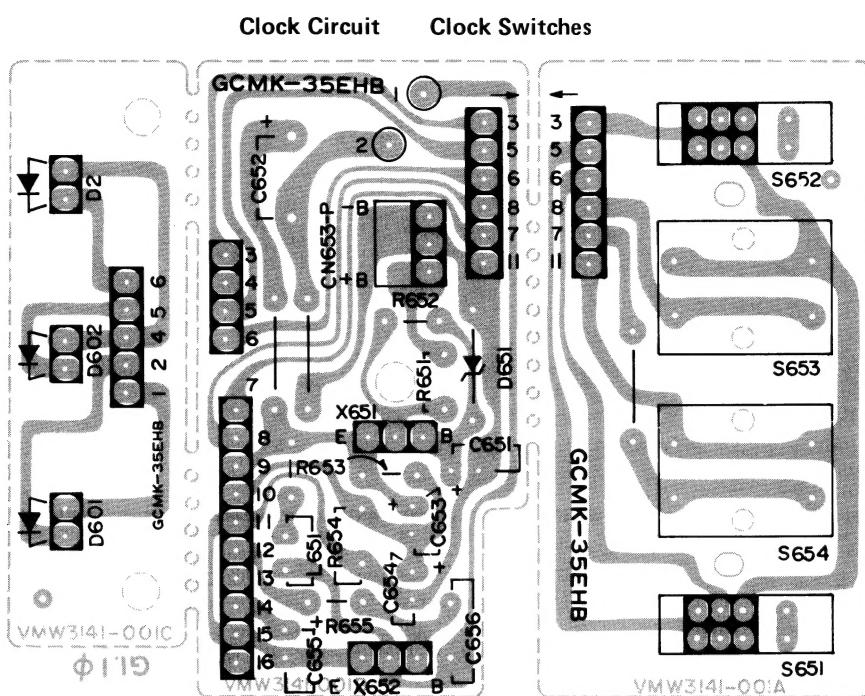


Fig. 41

Switch P.W.B. Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
S653, 654	VMW3141-002A	P.W. Board		1
	V44611-002	Formed Bus Wire		1
S652	QSP0022-004	Push Switch		2
S651		Slide Switch		1
		"		1

Clock Circuit P.W.B. Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
X651, 652	VMW3141-002B	P.W. Board		1
	2SC536(F)	Transistor		2
D651	HZ3C3	Zener Diode		1
R651	QRD187J-221A	C. Resistor	220 Ω 1/8 W	1
R652	" -561A	"	560 Ω "	1
R653, 654	" -334A	"	330 k Ω "	2
R655	" -332A	"	3.3 k Ω "	1
R656	QRD143J-221S	"	220 Ω 1/4 W	1
L651	VQP0001-103	Inductor		1
C651	QEK41EM-475	E. Capacitor	4.7 μ F 25 V	1
C652	QET41AR-228	"	2200 μ F 10 V	1
C653, 654	" -107	"	100 μ F "	2
C655	QET41HR-105	"	1 μ F 50 V	1
C656	QCF11EZ-102	C. Capacitor	0.001 μ F "	1
C657-660	QCC11EM-223	"	0.022 μ F 25 V	4
	VWP406-05A2A2	P.C. Joiner		1
	V44611-002	Formed Bus Wire		2
CN653-P	QMV5005-003	Connector		1

Packing

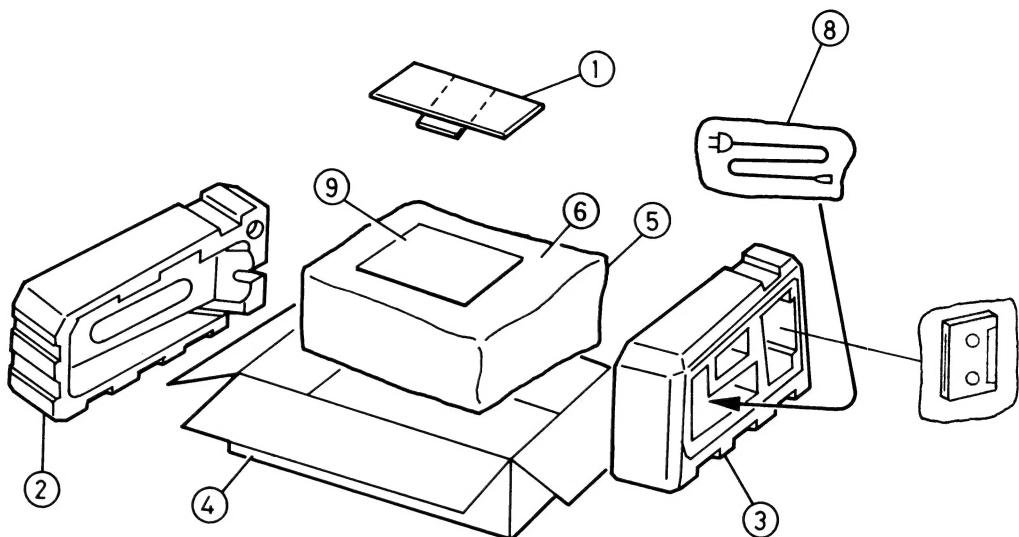


Fig. 42

Packing Material Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
1	VPH4101-003	Door Protector		1
2	VPH1204-002	Side Cushion		1
3	VPH1198-001	"		1
4	VPD5062-	Carton		1
5	QPGA060-05005	Poly Bag		1
6	VHPJ079-036	Paper Sheet		1
8	QPGA012-01505	Poly Bag	for PX EES	2
9	QPGB024-03404	"	for Instruction Book	1

Accessories

Parts No.	Parts Name	Remarks	Q'ty
VGT12S2-J05	Cassette Tape		1
QMP3950-183	Power Cord		1
VYA4001-00A	Head Cleaning Stick		1
VNC6305-001	Trouble Shooting		1
VNM0818-301	Instruction Book		1
53866-2	Label		1

JVC

VICTOR COMPANY OF JAPAN, LIMITED.
RADIO & RECORDING MACHINE DIVISION 10-1, 1-chome, Ohwatari-cho, Maebashi-city 371, Japan